THE JOURNAL

OF THE

American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 168, NO. 1 — CHICAGO, ILLINOIS — SEPTEMBER 6, 1958

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RESPONSE OF PREGNANT WOMEN AND THEIR INFANTS TO POLIOMYELITIS VACCINE

DISTRIBUTION OF POLIOVIRUS ANTIBODY IN PREGNANT WOMEN BEFORE AND AFTER VACCINATION—TRANSFER, PERSISTENCE, AND INDUCTION OF ANTIBODIES IN INFANTS

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Sixty-five per cent of unvaccinated pregnant women lacked antibodies to one or more poliovirus types, according to neutralization tests on serum done with HeLa cell cultures. Two injections of formalinized poliomyelitis vaccine given during pregnancy reduced the incidence of incompletely protected women to 18%. The infant at birth usually showed passively acquired antibodies at a level equal to or slightly below that of his mother, eliminated half of the antibodies in about five weeks after birth, and retained measurable amounts of antibodies for postnatal periods proportional to the content received at birth. On immunization with two injections of vaccine when the infants were one year old or less, their antibody responses were poorer than those of their mothers.

THE NEWLY BORN human or animal infant demonstrably has capacity to acquire passive immunity against toxins, bacteria, and viruses after injection of the corresponding antigen into the mother during pregnancy. Poliovirus antibodies were first shown to be passively transferred from the human mother to her infant by Aycock and Kramer in 1930.[1] Since that time passively transmitted maternal immunity has been recognized as a factor in the resistance of newborn children to poliomyelitis.[2]

It has been suggested that placentally transferred passive immunity to poliomyelitis can be converted to active immunity by subclinical infection during the phase of declining protection by maternal antibody. Such induction of active immunity could partially explain the low frequency of poliomyelitis epidemics in most tropical and subtropical countries,[3] a frequency, however, which seems to increase as socioeconomic and hygienic conditions improve in these areas.

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The present study was designed (*a*) to determine the incidence by titer of naturally occurring poliovirus antibodies in pregnant women; (*b*) to compare the antibody response of pregnant women to formalinized (Salk) poliomyelitis vaccine [4] administered subcutaneously or intradermally; (*c*) to measure naturally occurring and vaccine-induced poliovirus antibodies passively transferred from mother to infant and the persistence of maternal antibodies in the infant; and (*d*) to evaluate the response to poliomyelitis vaccine of infants without previous actively immunizing experience.

Materials and Methods

The studies begun at the University of Minnesota in May, 1955, through combined efforts of the departments of bacteriology and immunology, obstetrics and gynecology, and pediatrics and the School of Public Health were made possible by voluntary participation of 188 pregnant women registered for obstetric care at the University of Minnesota Hospitals. The average patient age was 26.7 years (range, 17-42); about two-thirds of the group were private patients.

TABLE 1.—*Percentage Distribution of Poliovirus Antibodies by Immunotype and Titer Among 186* Pregnant Women Before Vaccination (Naturally Occurring) and 136 Pregnant Women After Two Injections† of Poliomyelitis Vaccine*

	Antibodies, Type					
	Naturally Occurring			After Vaccination		
Titer Level	1	2‡	3	1*	2	3
4,096 or greater	2.7	4.3	1.6	15.7	25.0	21.3
1,024	4.3	11.3	7.0	22.4	22.8	24.3
256	13.5	15.0	15.6	13.4	21.3	19.8
64	12.9	15.6	17.2	18.7	16.2	8.8
16	21.0	9.1	11.3	11.9	12.5	11.8
4	10.7	13.4	7.5	6.7	1.5	3.7
Not measurable (<4)	34.9	32.3	39.8	11.2	0.7	10.3

* Two serum specimens lost.
† Given subcutaneously or intradermally.
‡ One serum specimen not analyzed for type 2.

Specimens.—Samples of maternal blood for antibody assay were obtained by antecubital fossa venipuncture; infant blood was withdrawn from the internal jugular vein.

Quantitative Assay of Poliovirus Neutralizing Antibody.—For antibody assays, HeLa cell cultures were prepared and rinsed as previously recommended [5] for application of the dispersed cell technique to use of mammalian cells in continuous culture. Test serums diluted 1:4 in yeast extract medium (YEM)[6] were inactivated at 56 C for 30 minutes, serially diluted fourfold in YEM supplemented with 3% chicken or monkey serum and added bicarbonate for culture maintenance, and dispensed in 1-ml. aliquots into four tubes per serum dilution. Suspended HeLa cells then were added to tubes, which were slanted and incubated at 36 C. Cultures were inspected under the microscope daily for four days to detect cytopathogenic effect. Serum titers, as usual, are reported as reciprocals of dilutions for which 1-ml. samples were calculated to destroy 50% of the culture tubes inoculated. Serum tests, including those with appropriate cell and serum controls, were assayed with 100 tissue culture infective doses ($TCID_{50}$) of poliovirus types 1-3 according to titers determined on each day of testing. When primary serum dilutions (1:4) were inactive, titers were classified as "not measurable."

Results

Distribution of Poliovirus Neutralizing Antibody in Pregnant Women.—Serum specimens representative of 186 of the 188 pregnant women participating in the study were successfully assayed for neutralizing antibody. Distribution of "naturally occurring" poliovirus antibodies in these women prior to reception of any poliomyelitis vaccine is shown by titer in table 1. No antibodies to any type of poliovirus were detected in serums (1:4) from 11.3% of the group. Antibodies to one or two types were present in 53.6%. Antibodies to all three types of poliovirus were detected in serums from 35.1% of the group. Therefore, 65% of these women were incompletely protected by antibody. Only a small number of the women exhibited antibody titers equal to or exceeding 1,024.

Response of Pregnant Women to Poliomyelitis Vaccine.—Subsequent to the 1955 poliomyelitis season in Minnesota, 138 pregnant women participated in a study program of immunization with Salk vaccine prepared in three lots by two commercial manufacturers. Approximately 50 women were injected with each lot; half of the group received a smaller amount of the vaccine intradermally (two doses of 0.2 ml. given three to four weeks apart) rather than the usual larger amounts subcutaneously (two doses of 1.0 ml. given three to four weeks apart) used for the remainder of the group. Since spontaneous abortions usually occur before the 16th week of pregnancy, no initial injection was given to the mother before this time, as calculated from the last menstrual period. This precaution reduced the possibility of the patient associating vaccine administration with abortion if such should have occurred. Further, no initial injection was given after the 30th week of pregnancy, so as to permit maximum antibody response to the second injection before delivery. Blood samples were collected immediately before the first injection and approximately four weeks after the second. With very few exceptions, all injections were performed by the same investigator (K. A. P.). Intradermal injections of 0.1 ml. of vaccine into the skin of the flexor surface of each forearm were given. By this technique, a total of 0.4 ml. of vaccine was administered intradermally, in contrast to the 2.0 ml. given subcutaneously. Assays were completed on serums representative of 133 of the original 138 participants. The distribution among the 133 vaccinated women for serum taken before vaccination is as

follows: antibody titer to virus of all types, 33.1%; to that of one or two types, 58.6%; and to that of no type, 8.3%. After two injections of poliomyelitis vaccine, 82% of the women responded with measurable antibody titers to all three poliovirus types. Complete failure of antibody response occurred with 18% of the women. These figures indicate that 73% of the women previously without complete antibody protection developed measurable antibody to all three poliovirus types after two injections of Salk vaccine. Frequency of pregnant women responding with antibody titers of 1,024 or greater was increased significantly for each poliovirus type (table 1).

In women with measurable antibody titers before and after vaccination (table 2) vaccine given intradermally elicited as satisfactory an antibody response as vaccine given in larger amounts subcutaneously. However, a greater proportion of pregnant women vaccinated intradermally failed to respond measurably to one or more poliovirus types, in contrast to the proportion of women so responding when subcutaneously vaccinated (table 2).

TABLE 2.—*Response of 136 Pregnant Women to Two Injections of Poliomyelitis Vaccine, Measured as Geometrically Averaged Ratios of Poliovirus Antibody Titers, and Proportion of Pregnant Women with Titers Not Measurable Before and After Two Injections*

Vaccine Lot	Response to Vaccination, Type*											
	Subcutaneous						Intradermal					
	Averaged Ratio			Not Measurable, Frequency			Averaged Ratio			Not Measurable, Frequency		
	1	2	3	1	2	3	1	2	3	1	2	3
029849—A	11.2 (24)	9.1 (25)	9.8 (25)	1/24	0/25	0/25	9.1 (25)	13.5 (25)	12.3 (22)	0/25	0/24	3/25
029126—A	10.7 (20)	20.0 (20)	14.8 (20)	0/20	0/20	0/20	17.4 (16)	18.6 (19)	19.1 (17)	2/19	0/10	2/19
9184-653802	8.3 (19)	8.4 (23)	10.4 (19)	4/23	0/23	4/23	12.0 (15)	17.0 (21)	24.0 (17)	7/22	1/22	5/22

* Number of averaged observations is recorded in parentheses.

Transfer of Poliovirus Antibody from Mother to Infant and Persistence of Transferred Antibody in Infants.—At delivery of the studied mothers, a third specimen of maternal blood and a sample of cord blood were obtained. At approximately three-month intervals during the following year, or until tests revealed no detectable titer of persisting antibody, blood samples were collected again from infants. Comparison of maternal poliovirus antibody titer at delivery with cord blood antibody titer (table 3) showed agreement within the error of the assay method (expected error equivalent to one serial dilution) in more than 85% of instances. In no instance did the cord antibody titer significantly exceed that of the maternal blood taken at delivery. Cord antibody titers less than maternal titers at delivery by two or more serum dilutions were observed for any type of poliovirus in no more than 14% of instances (table 3).

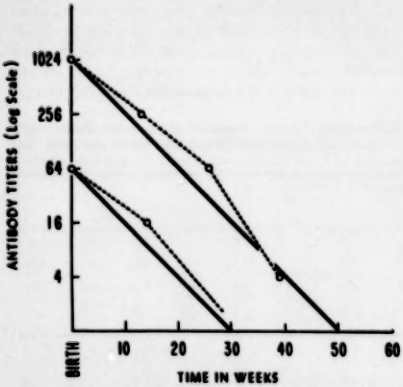
Antibody titers recorded successively for each tested infant were converted to logarithms and used to calculate rate of decline of passively acquired antibody titer for each infant for each poliovirus immunotype. Within the error of such determination, rates of decline did not differ consistently with respect to type of passively transferred poliovirus antibody. The rate of decline also did not appear to be influenced by the initial titer level. Accordingly, rates of decline for all infants were averaged to determine the half-life of the passively transferred antibody (see figure). The indicated half-life of the poliovirus antibody was nearly 37 days. At 9 to 12 months of age, the majority of infants with cord blood titers of 1,024 or greater still exhibited detectable titers of antibody. The figure also illustrates the typical gradual decline in antibody titer found for two of the tested infants in the first year of life.

Response of Unexposed Infants to Poliomyelitis Vaccine.—Seventy-seven infants born of mothers included in this study were given two subcutaneous injections of 1 ml. each of commercially available Salk vaccine four weeks apart. The infants were injected initially either on reaching 1 year of age or on revealing a not-measurable low titer of passively transferred poliovirus antibody; usually, injections were begun from 3 to 12 months after delivery. Four weeks after a second injection, a blood specimen was obtained for determination of antibody response. Antibody response of vaccinated infants was calculated as the geometric increase in poliovirus antibody titer after vaccination, corrected for the exponential drop in titer of passively transferred antibody as determined by the half-life estimate. Of these infants who had no previous actively immunizing experience with poliovirus (responses in infants whose antibody levels after vaccination were not measurable were considered vaccination failures and were excluded from distribution), 53 (6.07%) showed response to type 1 antibodies, 68 (8.60%) to type 2, and 58 (7.45%) to type 3. After two injections of vaccine, 25 (32.5%) of the 77 infants exhibited titers of antibody to all three poliovirus types, 47 (61.0%) showed response to one or two types, and 5 (6.5%) did not respond measurably to any poliovirus type. According to antibody

titer, 67.5% of infants were incompletely protected against all three types of poliovirus. The percentage distribution of titers by immunotype (table 4) reveals few titers greater than 64. Response to vaccination against type 1 virus was below the limits of measurement in 43.5% of instances, to type 2 in 18.4%, and to type 3 in 35.5%.

Comment

The extraordinary susceptibility of pregnant women to paralytic poliomyelitis seems well established. Paul [5a] suggests that this vulnerability may result from endocrinologic influences, perhaps similar in operation to the action of cortisone in increasing susceptibility of experimental animals.[7] This study showed that 65% of unvaccinated pregnant women lacked antibody in measurable titer to one



Rate of decrease in titer of poliovirus neutralizing antibody passively acquired by human infants ("half-life" = 37 days).

or more types of poliovirus. Where supplies of poliomyelitis vaccine are limited, assignment of priority to pregnant women therefore seems justified.

Two injections of the vaccine given during pregnancy reduced the proportion of women with demonstrable antibody from 65 to 18%. Undoubtedly a full course of three or four vaccine injections would reduce the proportion still further. Usually, however, such a vaccination series cannot be completed during pregnancy because the recommended interval to the third injection falls after time of delivery.

Von Magnus and associates [8] used the intradermal route for injection of about 420,000 Danish children with formalinized poliomyelitis vaccine. Their report led us to use the pregnant women under study in two groups to learn the comparative antibody response to two injections of vaccine, three to four weeks apart, given as 0.4 ml. by the intradermal route to one group and to the other group subcutaneously in the recommended 2-ml. divided dose. The results indicate an antibody response to 0.4 ml. of vaccine by the intradermal route, which is comparable to the larger antigenic mass given subcutaneously. These findings are not in full agreement with Salk's experience.[9] It may be noted for consideration when vaccine supplies are limited that results here obtained by intradermal injection

TABLE 3.—*Distribution of Maternal and Newborn Infant (Cord) Antibody Titers at Time of Delivery*

	Frequency of Antibody Levels to Poliovirus Type					
	1		2		3	
Class or Titer	No.	%	No.	%	No.	%
Measurable	87		89		91	
Cord blood titer±1 dilution of maternal blood	80	92	80	89.9	78	85.7
Cord blood titer less by 2 or more dilutions than maternal blood	7	8	9	9.1	13	14.3
Not measurable	20		7		16	
Total observations	107		106		107	

involved use of vaccine stored beyond the expiration date indicated on the vial (but not beyond the acceptable six-month grace period).

It is generally accepted that the newborn infant is resistant to certain bacterial and virus diseases as a result of antibody received from a mother who has been immunized by natural infection or previous vaccination. The infant at birth usually shows antibody at a level equal to or slightly below that of the mother. The duration of immunity so conferred on the infant depends on the rate of elimination of antibody from the infant and on the amount present at birth. Assuming that a certain level of antibody must be present to impart any

TABLE 4.—*Percentage Distribution of Poliovirus Antibody by Immunotype Among Seventy-seven Infants Given Two Injections of Poliomyelitis Vaccine in the First Year of Life*

	Type		
Titer Level	1	2	3
1,024 or greater	0	0	1.3*
256	0	2.6	2.6
64	5.3	15.8	11.8
16	15.8	31.6	26.4
4	35.5	31.6	26.4
Not measurable	43.5	18.4	35.5

* One infant had a titer of 1,024 at time of first vaccine injection nine weeks previously. Cord blood 14 weeks prior to vaccination showed titer of 1:16. This probably represents natural actively immunizing experience with live type 3 virus.

reasonable protection against infection, and since the rate of loss of passively transferred antibody is uniform, the duration of congenital antibody protection is a function of the amount of antibody possessed at birth. In the present study, the great

majority of infants possessing titers at birth equal to or exceeding 1,024 still exhibited measurable titers as late as from 9 to 12 months of age. Although antibodies of such concentration were rare in unvaccinated pregnant women, they could be produced by two injections of formalinized vaccine in a reasonable number of cases (35-52%, see table 1). From these studies, it is concluded that use of Salk vaccine during pregnancy significantly increases maternal protection against poliomyelitis and prolongs passive immunity of the newborn infant.

The antigenic response of infants less than 1 year of age to two injections of vaccine appeared consistently inferior to that of pregnant women, according to measurement of response as geometric average of fold increase in antibody titer. This comparatively poor response may reflect that the mothers had experienced some actively immunizing contact with poliovirus at some time before vaccination. After two injections of poliomyelitis vaccine, the percentage distribution of antibody to poliovirus immunotypes in the infants resembled that in nonvaccinated pregnant women. This finding, likewise, may mean that the response of many women was secondary rather than primary. Antibody levels induced in the infants by reception of Salk vaccine were lower than levels of "naturally occurring" antibodies in the mother (compare tables 1 and 4).

Summary

Response of human mothers and their infants to immunization with Salk poliomyelitis vaccine was assessed through assay of neutralizing antibodies in serum specimens. HeLa cells in continuous culture and associated techniques developed for mass epidemiologic studies were employed for assay of antibodies of 186 pregnant women. Before vaccination, 35% showed antibodies to all three recognized poliovirus immunotypes and 11% showed no detectable antibody to any type. After two injections of vaccine, 82% of 133 pregnant women showed measurable antibody to all three poliovirus types. Where measurable antibody resulted, production by intradermal inoculation of two 0.2-ml. doses of vaccine at three-to-four-week intervals was as efficient as two 1-ml. doses.

Infants born to tested mothers (*a*) exhibited antibody levels essentially the same as the mother's, according to assay of cord and maternal blood at delivery; (*b*) eliminated half of the passively transferred antibody to poliovirus types 1, 2, or 3 in about five weeks, without respect to the neonatal antibody level indicated by cord blood titer; and (*c*) retained passively acquired antibody in measurable quantity for a postnatal period related to the level of acquired antibody at birth. After two injections of poliomyelitis vaccine, 32.5% of 77 infants one year of age or less had measurable antibody to all three poliovirus types. Infant response to the Salk poliomyelitis vaccine appeared to be inferior for all three virus types to that of the group of pregnant women.

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This study was aided by a grant from the National Foundation for Infantile Paralysis, Inc. Dr. Martins da Silva's participation was made possible through research grants from the Elizabeth Kenny Foundation.

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STAPHYLOCOCCIC PNEUMONIA IN INFANCY AND CHILDHOOD

ANALYSIS OF SEVENTY-FIVE CASES

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In recent years a change has occurred in the spectrum of pulmonary infections requiring hospitalization.[1] During the winter and spring months pediatric wards are no longer filled with numerous patients with pneumococcic and streptococcic pneumonia; most of the time such patients are being treated satisfactorily with antibiotics in the home. There does seem to be, however, an increasing incidence of primary staphylococcic pneumonia.[2] To characterize this disease as it has been seen in recent years, a detailed analysis has been made of 75 consecutive patients treated at the Children's Medical Center during a period of approximately six and one-half years (1951 through July, 1957.) Our presentation of these data will emphasize that this is an important entity which requires the attention of both physician and surgeon, for a patient with staphylococcic pneumonia often needs the services of both.

Primary staphylococcic pneumonia is an important entity which requires the attention of both physician and surgeon, for a child with this illness often needs the services of both. As with any pneumonia in infancy, the presenting signs and symptoms may suggest an acute abdominal condition. The following are the criteria for diagnosis of staphylococcic pneumonia: (1) a positive culture for hemolytic Staphylococcus pyogenes var. aureus from empyema fluid, or from lung parenchyma at autopsy, together with compatible clinical and radiologic findings, or (2) the roentgenographic finding of cystic, radiolucent areas in the lungs of an infant with active pneumonia. Treatment of these patients includes vigorous supportive care, blood transfusions, prolonged treatment with specific antibiotics, and, frequently, closed-tube thoracotomy drainage.

Criteria for Inclusion of Cases

We are concerned in this paper only with primary pneumonia produced by the hemolytic Staphylococcus pyogenes var. aureus. This series does not include any of the numerous patients with chronic debilitating diseases, such as pancreatic fibrosis or agammaglobulinemia in which pneumonia is merely a complicating event and from which the lung frequently yields at autopsy a positive culture for Staph. pyogenes var. aureus.

The following criteria for diagnosis of staphylococcic pneumonia have been used: (1) a positive culture for hemolytic Staph. pyogenes var. aureus (hereafter designated as "positive culture") from empyema fluid, or from lung parenchyma at autopsy, together with a compatible clinical and radiologic picture; or (2) the roentgenographic finding of cystic, radiolucent areas in the lungs of an infant with active pneumonia. A positive nose and throat culture for Staphylococcus in the presence of clinical signs of pneumonia is not a valid criterion for making the diagnosis of staphylococcic pneumonia, inasmuch as a high proportion of patients hospitalized for other conditions also harbor such organisms.[3]

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Radiologic Findings

There are several distinctive x-ray findings in staphylococcic pneumonia in infancy that are found in bacteriologically proved cases and rarely found associated with pneumonias of other etiology.[4] The recognition of these characteristic roentgenographic changes permits the presumptive diagnosis of staphylococcic pneumonia even when one cannot obtain cultural proof, either because there is no pleural fluid or because the patient has received antibiotics previously.

Distribution.—There may be a focal, segmental, or lobar distribution of the infiltration on roentgenographic examination of the chest. This correlates with studies of Reimann[5] suggesting bronchogenous entrance of bacteria with extension to the periphery by way of lymphatics and interstitial tissues. One may note various stages in a lung at a single examination.

Initially, x-ray examination of the chest of even an extremely ill child may reveal very little except a faint focal mottling of the lung parenchyma (fig. 1). This may progress rapidly to patchy consolidation of peripheral distribution, unlike the peribronchial infiltration of aspiration pneumonia. At

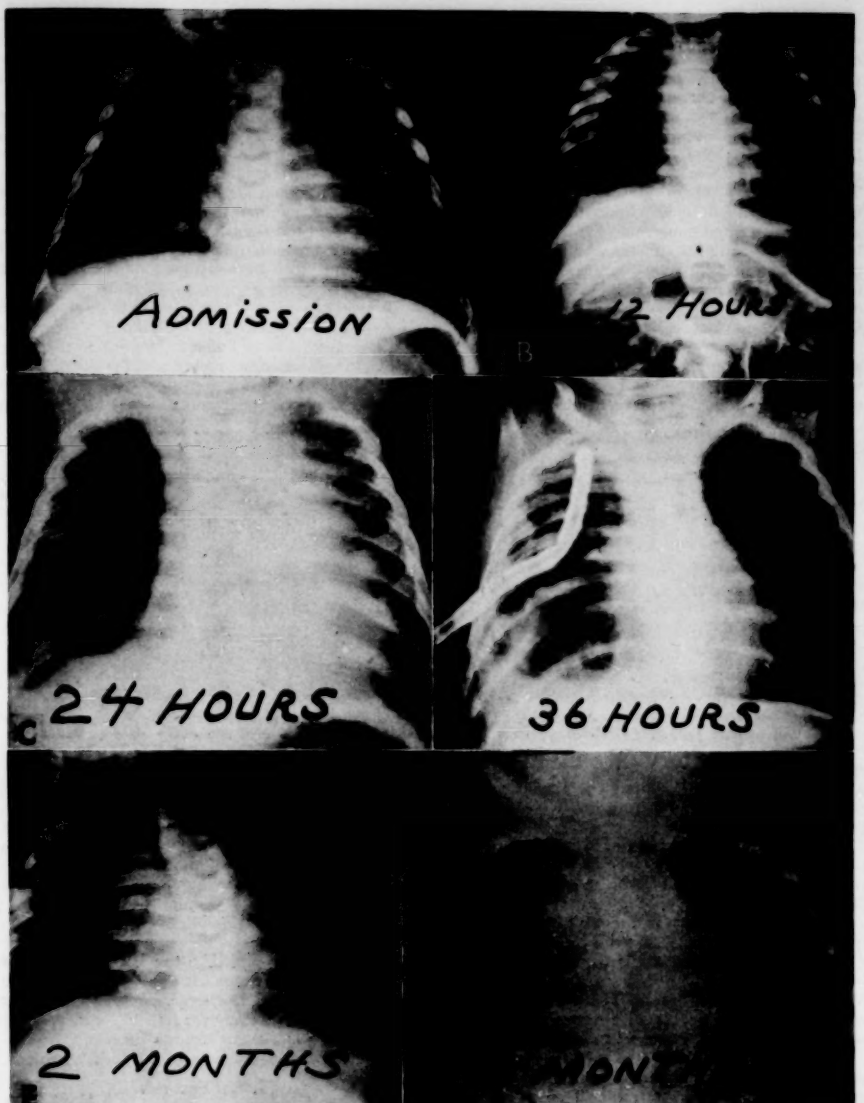

Fig. 1.—Roentgenograms of 18-month-old male referred with diagnosis of intussusception. *A*, minimal haziness of right lung. *B*, large pleural effusion. *C*, tension pyopneumothorax. *D*, expansion of lung on insertion of chest catheter. Lobular ectasia, or multiple blebs, is apparent. *E*, considerable pleural thickening. *F*, although not taken during inspiration, no residual abnormality present.

a later stage, coincident with bronchial and alveolar necrosis, characteristic of this suppurative pneumonia, multiple cyst-like emphysematous blebs appear. These result when air enters the interstitial spaces by way of necrotic areas in the small bronchi, becomes trapped, and gives a picture suitably described by Neuhauser and Wittenborg [6] as "lobular ectasia" (fig. 1). This roentgenographic finding was present in 65 patients (87%) in this series. Those patients in whom this finding was not present were principally older children who presented as having neglected empyema (fig. 2). This correlates clinically with the superior ability of the older patient to localize the infection,[1] as opposed to infants, in whom a spreading infection with bronchiolar necrosis seems to be an almost constant feature of staphylococcic pneumonia.

Pneumatocele Formation.—Certain of these small cyst-like accumulations of air may then expand with alarming rapidity, compressing adjacent lung tissue and frequently rupturing into the pleural space, causing a tension pneumothorax, which usually requires immediate decompression. Thirty-four patients (45%) in this series did develop such pneumatoceles (fig. 3). There were 14 patients (19%) with simple pneumothorax, but, more important, there were 17 patients (23%) with tension pneumothorax. There were four patients (5%) with fibrothorax.

Empyema.—Empyema is the second most frequent finding, occurring in 53 of these patients (71%) (fig. 2 and 4). Indeed, it is rare for empyema in an infant to be due to any agent other than Staph. pyogenes var. aureus. The combination of empyema and pneumothorax (pyopneumothorax) is characteristic of this type of infection.

Although it is reasonable to presume that most cases of pneumonia are bilateral to some degree, our findings (by x-ray and clinical examination) showed pneumonia to be confined to one side of the chest in the vast majority of these patients. In 43 patients (57.3%) the pneumonia was on the right; in 22 (29.3%) it was on the left; and in 10 (13.3%) it was bilateral. We have not encountered bilateral pleural complications, such as pneumothorax, requiring tube drainage of both pleural spaces, but certainly this can occur.[7]

It is important to emphasize the great rapidity with which the x-ray findings may progress, from minimal infiltration to empyema and tension pneumothorax in a few hours. This is graphically illustrated by a patient (fig. 1) in whom the initial film showed only minimal ill-defined localized increase in density in the right lower lung field, which progressed in 12 hours to a large pleural effusion and in 24 hours to a tension pneumothorax, requiring decompression as a lifesaving measure.

It is also worthy of emphasis that there may be a complete dissociation of the clinical state of the patient and his x-ray findings. Not only may a very ill child present few roentgenographic signs initially, but later, during convalescence, a child who appears clinically well and afebrile may develop

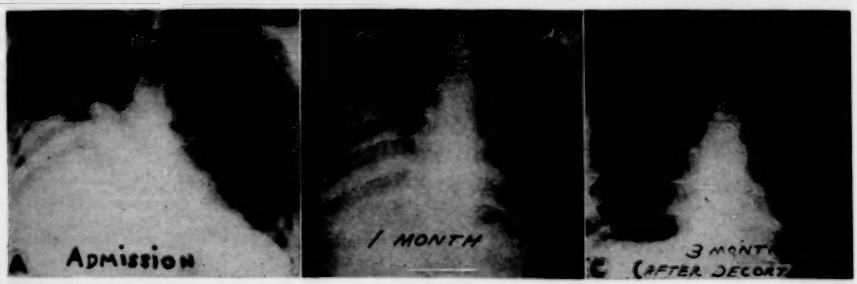

Fig. 2.—Roentgenograms of 13-year-old girl. *A*, unresolved empyema after initial treatment elsewhere. *B*, appearance after one month of catheter drainage and use of enzymatic débridement. *C*, essentially normal appearance after decortication.

tremendous pneumatoceles and a degree of pulmonary compression with which one would expect great distress to the patient. This is well demonstrated in the patient shown in figure 3, in whom pneumatocele formation after hospital discharge prompted readmission of the child in spite of his clinical well-being, for fear that sudden difficulty might arise at home, 100 miles distant.

Duration of X-ray Findings.—It often takes several weeks for the pulmonary roentgenographic signs to subside completely; this has prompted the continuation of therapy with antibiotics for three to six weeks after discharge. Pleural thickening may be evident by x-ray for four to six months. In no case has permanent change been apparent in either lung or pleura on long-term follow-up films.

Clinical Features

Incidence.—Figures 5 and 6 depict the yearly and seasonal incidence in the 75 patients here studied. The total number of patients seen yearly

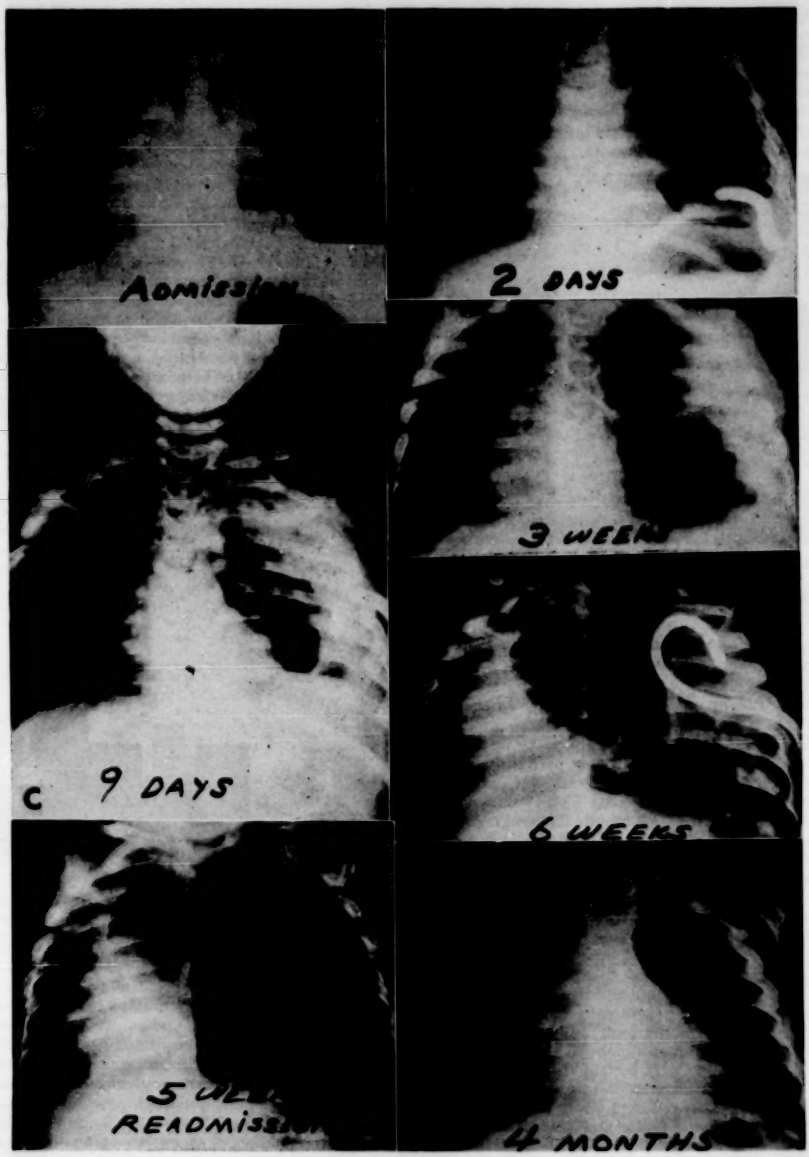

Fig. 3.—Roentgenograms of child. *A*, with left tension pyopneumothorax. *B*, satisfactory reexpansion of lung after drainage with chest catheter. *C*, widespread subcutaneous emphysema from active bronchopleural air leak. *D*, large pneumatoceles, seen at time of discharge, after stable x-ray findings for one week. *E*, further pneumatocele enlargement on readmission after five weeks. *F*, at six weeks, insertion of new tube, with gradual deflation of pneumatocele. *G*, at four months, minimal pleural thickening on left side, which later subsided, but normal lung parenchyma.

seems to be increasing. Patients have been encountered during every calendar month, although there is a wintertime preponderance.

Age and Sex.—As shown in figure 7, there were 51 males and 24 females in this series. The average age was 15 months, with the single largest group occurring in the range of 1 to 6 months (a total of 38 patients [51%]).

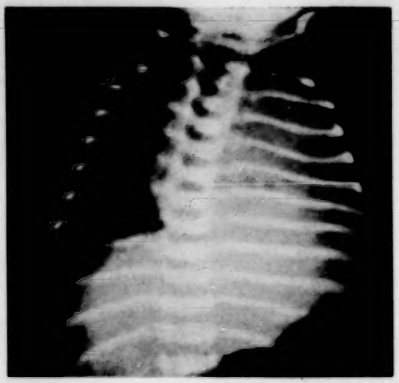

Fig. 4.—Roentgenogram of 2-week-old infant with massive empyema. Death occurred shortly after film was taken and before drainage could be done. Air bubbles in empyema furnish clue of staphylococcic etiology, confirmed by cultures.

Although this is principally a disease of infancy and early childhood, it is occasionally seen in older children, as shown in figure 7. The older subjects characteristically presented with massive empyema, from which Staph. pyogenes var. aureus grew in culture, and gave histories of respiratory infections treated with antibiotics with only partial improvement in symptoms. In general, they did not have the extreme toxicity, pulmonary bleb formation, or pneumothorax seen so often in the infant age group.

Pathogenesis.—In the majority of these cases no specific history of exposure to staphylococci was noted, although 20 patients (27%) were found to have cutaneous staphylococcic infections and 15 patients (20%) gave a history of family exposure to respiratory infection or to another infection, such as mastitis in the mother. Three cases occurred in patients who were already in the hospital convalescing from various other surgical procedures, (harelip repair, pyloromyotomy, and splenectomy for thrombocytopenic purpura). Unfortunately, no phage typing of these organisms was performed, but it is likely that only certain specific types are capable of producing such disease as this and that many of the patients presenting with staphylococcic infections during the entire first year of life have "hospital strains" acquired during the infant's stay in the nursery for newborn infants.* (Since completion of this analysis, phage typing of the staphylococci isolated from empyema fluid has been performed on several specimens; most were type 80-81 or 52-42B, so-called hot strains.)

Previous Treatment.—Fifty-three children (71%) had been given antibiotics prior to admission to this hospital. Thirty-three patients (44%) had been hospitalized at other institutions prior to admission and were transferred when it became apparent that they were not improving on the drug therapy being given or that such pleural complications as pneumothorax had appeared.

Physical Signs.—In 67 patients (89%) there were physical signs on admission indicative of pneumonia with pleural complications of empyema or pneumothorax. It is significant that eight subjects (11%) had no signs referable to the chest initially. Two patients had hemoptysis.

Cultures.—Nose and throat cultures were obtained in 69 patients, of which 53 (77%) were positive for Staph. pyogenes var. aureus. Blood cultures were obtained from 51 patients, of which 10 (20%) were positive. Cultures of the empyema fluid were obtained in 45 of the 53 patients in whom fluid was present (as shown by x-ray), and

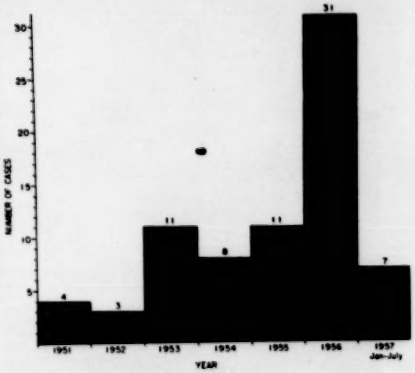

Fig. 5.—Yearly incidence of staphylococcic pneumonia, 1951-1957 (75 cases). Since completion of this analysis, over 25 patients have been admitted to this hospital with staphylococcic pneumonia from July through December, 1957, confirming trend toward increasing incidence.

35 (78%) were positive for Staph. pyogenes var. aureus. In three patients in whom we found typical empyema exudate by aspiration, gram-positive cocci could be seen readily on smear examination of the fluid, but no organism grew out on culture; this fact undoubtedly reflected previous administration of antibiotics. Of the 35 patients with positive pleural cultures, 5 also had positive blood cul-

tures. Blood cultures yielded hemolytic Staph. pyogenes var. aureus in five additional patients, in whom pleural fluid cultures were not performed. We have not resorted to the lung puncture technique as reported by Disney* for establishing a diagnosis of staphylococcic pneumonia.

With bacteriological proof of hemolytic Staph. pyogenes var. aureus in only 40 (53%) of the 75 patients in this series, one might well raise the criticism that pulmonary disease in the remaining patients was not due to this agent. As mentioned above, however, and previously by Campbell,[4] it is possible to rely on typical roentgenographic findings to make this diagnosis when cultures fail to grow because of previous administration of antibiotics, or when no pleural fluid is available for culture.

Antibiotic Sensitivities.—Complete antibiotic sensitivity tests were not performed in a number of the earlier cases in this series. Disk sensitivity tests were done, however, in 46 patients (61%), and in 40 of these the organisms were resistant to penicillin. None were reported as resistant to chloramphenicol or erythromycin.

White Blood Cell Count.—These patients characteristically present with an elevated white blood cell count. The average value for this series was 31,000 white blood cells per cubic millimeter. The highest value of 104,000 occurred in a 2-month-old infant with a tension pyopneumothorax. The lowest

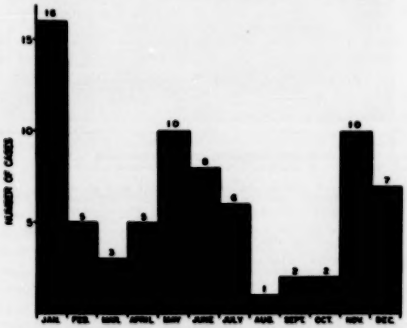

Fig. 6.—Seasonal incidence of staphylococcic pneumonia, 1951-1957 (75 cases).

count, 600 white blood cells per cubic millimeter, was observed in a moribund premature baby who died on the second hospital day.

Treatment.—These are usually critically ill infants. Many require, in addition to appropriate antibiotics, such vigorous general supportive care as blood transfusions, oxygen, humidified atmosphere, and, often, surgical drainage. These babies are frequently anemic on admission, with blood hemoglobin values of 7 to 8 Gm. %, secondary to overwhelming sepsis and loss of blood constituents in formation of empyema fluid. They often benefit from multiple transfusions to keep their hemoglobin values in the range of 12 to 13 Gm. %, at which level they seem to recover better from their illness.

Therapy with antibiotics must be specific and in adequate dosage. One cannot rely on penicillin

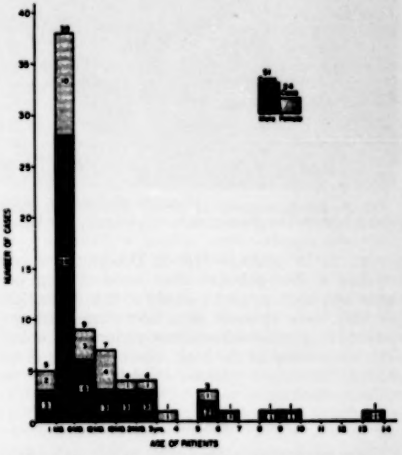

Fig. 7.—Age and sex distribution of staphlococcic pneumonia, 1951-1957 (75 cases).

alone, because the vast majority of these organisms are resistant to penicillin. Most of these infants are now treated at this institution with a combination of chloramphenicol and erythromycin as soon as the clinical, radiologic, or bacteriological picture suggests the diagnosis of staphylococcic pneumonia. The concomitant use of these two drugs may be more effective than either alone, for there is experimental evidence that the emergence of resistant organisms is less likely to occur when they are used together.[10] We usually administer the drugs by the intravenous or intramuscular route initially, switching to the oral route only after a satisfactory clinical response. Usual drug dosages are in the range of 100 mg. per kilogram per day for chloramphenicol and 50 mg. per kilogram per day for erythromycin to a maximum of 2 Gm. per day for each. It is current practice to continue this therapy for three to four weeks after discharge from the hospital in the severely ill patients. The average duration of hospital stay in this series was 26 days. Fifty-seven of these 75 patients (76%) received chloramphenicol and erythromycin, some in combination with

other drugs as well. Eighteen patients (24%) were treated with other antibiotics, principally during the early part of the series. Figure 8 illustrates the chest of a patient treated solely by medical means.

Closed-tube thoracotomy was necessary in 30 patients (40%). Enzymatic débridement was employed in 12 patients (16%). Decortication was required in four patients (5%); none of these patients had been treated initially at this institution, but they were referred at a later stage with unresolved empyema and resultant pleural thickening, with encasement of the lung. The conditions of all patients ultimately cleared completely, with no scoliosis resulting.

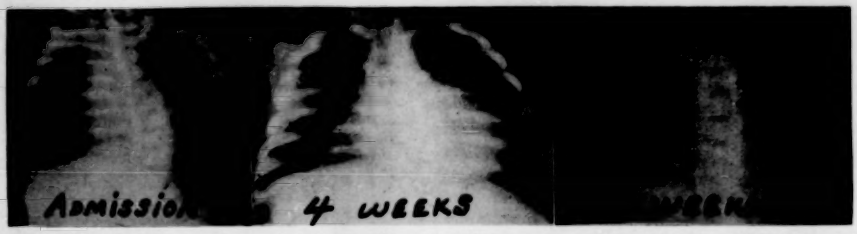

Fig. 8.—Roentgenograms of patient treated with chloramphenicol and erythromcyin. *A*, infiltration, multiple blebs, and pleural fluid. *B*, one pneumatocele. *C*, essentially normal appearance.

Deaths

There were nine deaths (12%) in this series, four in premature babies and all but one in infants under 3 months of age. The table summarizes points of interest regarding these patients. The last death is the only one of the nine which came as a surprise to those caring for the child; this patient was the only one who died in spite of therapy which, by present standards, would be considered adequate.

Surgical Considerations

Several distinctive features of staphylococcic pneumonia are of surgical significance. Foremost is the extreme rapidity with which events may progress. We have seen a moderately ill child with minimal indications of pneumonia change in a few hours to an exceedingly distressed baby, at death's door, with a tension pyopneumothorax. This is illustrated well by the roentgenograms in figure 1, of a 5-month-old male with a distended abdomen referred for consideration of an intra-abdominal process. Examination revealed minimal signs of pneumonia. He developed tension pyopneumothorax within 24 hours, necessitating insertion of a chest tube as a lifesaving measure.

The use of closed-chest drainage in selected cases performs a dual role. First, by evacuation of air and pus from the pleural space, there is often an immediate improvement in ventilation, a point of considerable importance when parenchymal involvement is sufficiently extensive to reduce the baby's vital capacity to a low level. One frequently sees a prompt diminution in the over-all toxic state of the patient with evacuation of exudate, as shown by the patient in figure 3, whose temperature fell

Staphylococcic Pneumonia: Nine Deaths from Series of Seventy-five Cases

Age	Date	Remarks	Pertinent Autopsy Findings
1 mo.	Jan., 1953	4 lb. (1,814.4 Gm. premature; treated in hospital for 22 days with penicillin, streptomycin, sulfadiazine, and oxytetracycline (Terramycin); gradual downhill course	Bilateral multiple lung abscesses
2 mo.	July, 1953	Respiratory distress for four wk.; referred as diaphragmatic hernia; massive empyema; treatment started with penicillin and streptomycin; died on first hospital day, before scheduled drainage could be performed	Pneumonia with abscess formation; empyema; skin furuncles; osteomyelitis of skull
3 mo.	Dec., 1953	Premature with cough for 2 wk.; treated with penicillin and streptomycin, and later chloramphenicol (Chloromycetin) and erythromycin; gradual decline.	Bilateral pneumonia; left pneumothorax; hypoplastic kidneys
2 wk.	May, 1954	Premature; a twin; respiratory distress since fourth day of life; admitted with referral diagnosis of tracheoesophageal fistula; pyopneumothorax; tube inserted; died on sixth hospital day; penicillin, streptomycin, chloramphenicol, and erythromycin used	Bilateral pneumonia; left empyema
2 wk.	Nov., 1954	Three days of anorexia, respiratory distress, and vomiting; massive left empyema (fig. 4); therapy with penicillin, streptomycin, chloromycetin, and erythromycin started; died on first day in hospital, without drainage	Massive empyema; bilateral pneumonia
19 mo.	April, 1955	Treated for two months elsewhere for pneumonia, slowly declining; died two days after admission; on therapy with chloramphenicol and erythromycin	Marked lobar consolidation, with areas of empyema
1 wk.	June, 1956	Premature admitted in extremis; developed tension pneumothorax, relieved with a tube; therapy with penicillin, sulfadiazine, chloramphenicol, erythromycin; improved, but then aspirated a gavage feeding.	Bilateral pneumonia; aspiration of feeding
1 mo.	Sept., 1956	Admitted in poor condition with pyloric stenosis; continued to vomit postoperatively; developed Staphylococcus infection at site of scalp vein infusion, then pneumonia with tension pneumothorax; tube inserted; died in six hours; inadequate antibiotic dosage	Bilateral pneumonia; pyloric canal adequate
6 wk.	Nov., 1956	Admitted in acute distress with pyopneumothorax; immediate tube; chloramphenicol and erythromycin; dramatic initial improvement but sudden deterioration on second day	Bilateral lung abscesses (fig. 9); pus in pericardium

from 105 F (40.6 C) to 99 F (37.2 C) in 12 hours after removal of 150 cc. of empyema fluid. Second, by producing prompt reexpansion of the lung, one averts the distressing complication of fibrothorax, which eventually requires decortication, a formidable and not always a satisfactory surgical undertaking.

Indications for Tube Drainage.—One cannot define dogmatically the precise indications for use of a thoracotomy tube, except to state that it is a conservative measure which should be used perhaps more often than it is. Certainly, tubes have been used in a higher proportion of the patients, in the latter part of this series of 75, with gratifying results, and no complications have resulted from insertion of these tubes in the 30 patients (40%) treated in this manner. Of the nine patients who died, four had had tubes inserted. One died of aspiration of a gavage feeding. In another, the

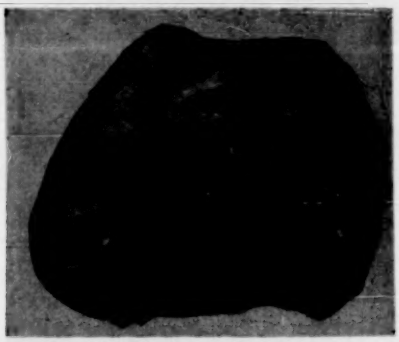

Fig. 9.—Portion of left lung of infant who died from acute staphlococcic pneumonia. Note multiple abscesses.

tube was inserted at a time when the child was already moribund with overwhelming generalized sepsis. Two others died with massive bilateral pulmonary involvement in spite of adequate evacuation of their empyema and pneumothorax, which was unilateral in each patient. It is highly significant that only four deaths occurred in those patients with complications requiring tube drainage, for that group of patients were, generally speaking, the most severely ill of the series.

In general terms, any significant collection of pleural fluid should be drained. It is difficult further to define "significant collection." If the patient is in a toxic condition and does not show a satisfactory response after 12 to 24 hours of appropriate antibiotic therapy, we regard even a small fluid collection as noxious, and we have observed great benefit from drainage of even small amounts of empyema fluid. Certainly, one should not wait for total obscuration of the underlying lung (on the roentgenogram) and mediastinal shift before inserting a chest catheter. If there is only a small amount of fluid, and the patient is improving rapidly, one may be justified in watching him for a few days, but not if there is any appreciable collapse of the ipsilateral lung. It is imperative to obtain frequent roentgenographic examination of the chest, especially in the initial days of this disease. Needle thoracentesis was performed on 30 patients in this series, principally as a single tap for bacteriological study of empyema fluid.

We have tended to avoid repetition of needle insertion for several reasons: First, insertion of a chest tube is very little more of a procedure and is infinitely more effective. We have repeatedly observed that chest taps with needles of apparently adequate caliber yield only a few cubic centimeters of pus, whereas a chest tube used immediately thereafter evacuates over 100 cc. of material. Second, there is a real danger of lacerating underlying lung parenchyma with a needle's sharp beveled edge as the lung expands.

A tube should be inserted immediately in any case in which a tension pneumothorax develops, and it is probably the safest course to take when any pneumothorax appears spontaneously early in the course of this disease, for a small pneumothorax can build up fatal tension in a very short time. If faced with such an emergency, without equipment ready for immediate insertion of a tube, one can always release a tension pneumothorax by insertion of an ordinary hollow-bore needle through an interspace. A further refinement consists of attaching a piece of rubber tubing to the needle, placing the distal end of the tubing just beneath the surface of some water in a container, a so-called water-seal, which permits egress of air under tension but prevents ingress of air on inspiration by the patient. It is sometimes impossible to differentiate between a loculated tension pneumothorax and a very large, thin-walled pneumatocele later in the course of this disease, and we have observed no ill-effects from insertion of a chest tube directly into such an air collection in several instances.

We prefer the use of 8 to 10 cc. of water of suction, combined with a water-seal bottle closest to the patient (fig. 10). It is important, and sometimes overlooked, that the chest tube never be clamped during the early phase of this illness, such as when the patient leaves his ward to have an x-ray examination performed, lest a tension pneumothorax should occur. Instead, the child should be transported with the tube "on water-seal." The water-seal bottle must, of course, be kept at a level somewhat lower than that of the patient, to prevent siphoning from the drainage bottle into the chest.

Technique of Insertion of Chest Tube.—It is more convenient to perform closed drainage of the chest in an operating room, but if an operating room is not immediately available, or the infant is too ill to move, it can be accomplished readily in the bed or in a simple treatment room. The child may be positioned sitting upright (fig. 11) or lying on his

side, depending on the operator's preference and the degree of the patient's respiratory distress. Some patients with tension pneumothorax seem to have better ventilation in the sitting position during those critical minutes before drainage is performed. The child must be restrained firmly, but gently, preferably by two nurse-assistants. Unless there is a loculated collection of air or fluid which indicates the most favorable location for the tube, one chooses a convenient point in approximately the anterior axillary line in the fourth or fifth interspace. This is often slightly higher than would seem ideal, by roentgenogram, but one must be careful not to position the tube too low, for on evacuation of pleural fluid the diaphragm may rise and render less effective the drainage from a tube placed too low.

After suitable cleansing of the skin, a very small cutaneous incision is made, with the patient under local anesthesia, to facilitate passage of the trocar. The trocar is pushed in obliquely with a twisting

Fig. 10.—Two-bottle chest suction apparatus. Bottle on left is "water-seal," closer to patient. Bubbles in it demonstrate presence of active bronchopleural fistula.

action, forcefully, but with restraint to avoid plunging deeply into the chest on traversing the parietal pleura. Flexing the child's chest toward the opposite side opens the rib interspace and facilitates passage of the trocar. After removal of the stylet from the trocar, the previously prepared and tested tube is inserted, the trocar is withdrawn, and the tube is then pulled back into its best position. This position can be determined easily beforehand by marking a ring around the tube with a ball-point pen prior to sterilization of the tube, so that the tube may be withdrawn to the point at which the ring appears at the skin level. The tube may be secured to the skin with a single silk suture and, for added safety, to the dressing with adhesive tape. A critically ill patient with pyopneumothorax often improves dramatically before one's eyes.

The duration of such drainage is variable. It may be required for only a few days, or it may be necessary for three or four weeks. The average duration in this series was 13 days; the longest was for 33 days. The tube is kept on suction until there is no evidence of further leakage of air or of purulent drainage. It may then be put on water-

Fig. 11.—Child immediately after insertion of chest catheter, done in upright position because of extremely severe respiratory distress.

seal for a day or two, then clamped for a day or two, and if all is well by clinical and roentgenographic examination the tube may be removed. These tubes have been irrigated with small amounts of sodium chloride solution periodically to insure patency, but such irrigations should be done gently, in order not to flood the bronchial tree should a bronchopleural fistula be present.

It is occasionally necessary to use more than a single tube, and one should not hesitate to reposi-

Fig. 12.—Relatively simple equipment needed for performing closed tube thoracotomy.

tion the first tube or to add a second tube in another location, if the situation requires such action. Six patients in this series required two tubes, and three patients required three tubes. Rib resections were not performed in any case. No complications resulted from the use of these tubes.

The tubes employed were ordinary red rubber urethral catheters with additional holes cut in them.

For infants, a 10 to 12 F. tube is adequate; a 14 to 16 F. tube is required for older children. Figure 12 illustrates the rather simple equipment one needs for this procedure.

In no case have we observed a bronchopleural fistula from staphylococcic pneumonia fail to close spontaneously on closed drainage. None of the patients required surgical closure. The longest duration of air leakage was 31 days.

Pneumatoceles.—Resolution of pneumatoceles may be a slow process, taking weeks or even months (fig. 8). As has been emphasized by Caffey,[11] surgical extirpation of these lesions is not necessary, because they disappear spontaneously. As previously mentioned, it is sometimes impossible to differentiate between a pneumatocele and a well-localized, loculated pneumothorax. Under such circumstances, with gradual enlargement of the cystic space and compression of adjacent lung, we have thrust a tube directly into the cyst, with no untoward effect, and with deflation of the cyst over a period of several days. We have not encountered a situation in which it was necessary to excise such a pneumatocele as described by Fisher and Swenson.[19]

Enzymes.—Enzymatic débridement of the pleural space has not been used routinely in this institution but was employed in 12 patients (16%) in this series. It is reserved for those patients in whom the pus is, or becomes, thick and tenacious, often with large fibrin clots, which cause drainage to become ineffective. It is customary to instill 10,000 to 20,000 units of streptokinase-streptodornase (Varidase) in 20 to 30 cc. sodium chloride solution into the pleural space through the tube, clamp the tube, and let it remain there for approximately four hours. The child must be watched closely during that time, for some patients get an immediate febrile reaction to this agent, and we have observed the temporary reopening of a bronchopleural fistula, which may become a dangerous situation with the tube clamped. If either of the above reactions occur, the enzymes should be drained immediately by unclamping the tube and irrigating with sodium chloride solution. These agents are often remarkably effective in liquefying thick pus and facilitating drainage. We have observed a moderate degree of intrapleural bleeding in two patients after the use of enzymes. However, both were children with abnormally low platelet counts.

Differential Diagnostic Considerations

As with any pneumonia in infancy, the presenting picture may seem occasionally to be an acute abdominal condition. An infant in respiratory distress may swallow a sufficient quantity of air to produce abdominal distention and further embarrass respiration. Under such circumstances, nasogastric Levin tube suction may be indicated.

A diaphragmatic hernia with intrathoracic loops of intestine may mimic clinically and by roentgenogram the picture of staphyloccic pneumonia, especially if there is compression atelectasis of the lung, with fever, secondary pneumonitis, and respiratory distress. Figure 13*A* shows such a case, in which the referral diagnosis was staphyloccic pneumonia. The x-ray was indeed suggestive and the clinical picture compatible, but figure 13*B* shows the actual pathology to be a large diaphragmatic hernia, with displacement of most of the intestine into the left side of the chest. We have seen the reverse occur also, that is, a case of staphyloccic pneumonia with predominantly basilar involvement simulate a diaphragmatic hernia. A loculated empyema situated posteriorly in the pleural space of an infant may also simulate a solid intrathoracic tumor.

Fig. 13.—Roentgenograms of baby with clinical picture of pneumonia and respiratory distress. Multiple "cystic lesions" simulate changes in staphylococcic pneumonia (*A*), which proved to be diaphragmatic hernia with loops of intestine in left pleural space, apparent after ingestion of barium sulfate (*B*).

Summary and Conclusions

Seventy-five consecutive patients, recently observed, with primary staphylococcic pneumonia were treated by the medical and surgical services of the

Children's Medical Center. Bacteriological cultures of hemolytic Staphylococcus pyogenes var. aureus were obtained from empyema fluid or the lung in 40 patients (53%) in this series. Typical x-ray findings of staphylococcic pneumonia were present in all other patients. Distinctive roentgenographic features included the formation of usually multiple, small, pulmonary, radiolucent areas, pneumatocele formation, empyema, pneumothorax, and rapid change from one appearance to another.

Males outnumbered females by a 2:1 ratio. Although principally a disease of infants, occasionally cases occurred in older children. A significant number of patients had concomitant cutaneous staphylococcic infections. Many had previously received antibiotic treatment. Physical signs of pneumonia were not present initially in some patients.

We stress the need, in treatment of these patients, for vigorous supportive care, blood transfusions, prolonged treatment with specific antibiotics, and, frequently, closed-tube thoracotomy. Closed-tube thoractomy must be regarded as a conservative measure which is simple to perform and often lifesaving. Among the indications for insertion of a closed-thoracotomy tube are a significant collection of pleural fluid and tension pneumothorax. Attention should be paid to the proper technique of such drainage.

Enzymes have been employed in some patients whose illness is complicated by empyema. Differential diagnostic considerations which have been encountered include abdominal emergencies, diaphragmatic hernia, and intrathoracic tumor. Nine deaths occurred in this series, and pertinent facts related to them have been listed. Staphylococcic pneumonia is an important entity with which physician and surgeon alike should be familiar, since a high proportion of patients require the services of both.

300 Longwood Ave. (15) (Dr. Haggerty).

This study was aided by a grant from the Commonwealth Fund.

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TRIPLE VACCINES.—A group of infants was inoculated during the neonatal period with aluminum phosphate adsorbed or aluminum hydroxide adsorbed diphtheria-tetanus toxoid and pertussis vaccine, combined. The infants were observed up to 1 year following completion of the series of three inoculations. Based on diphtheria antitoxin titrations, responses to the aluminum phosphate and aluminum hydroxide absorbed antigens were comparable. Based on pertussis agglutination titers 1 month and 1 year following vaccination, the aluminum phosphate was better than the aluminum hydroxide adsorbed preparation. Better combined protection against diphtheria and pertussis followed inoculation with the aluminum phosphate adsorbed antigens. No differences in local or systemic reactions following the two types of antigens were observed. The data confirm the desirability of a fourth dose or booster dose at 1 year of age when inoculation is begun during the neonatal period.—L. S. Goerke, M.D., Pauline Roberts, M.D., and J. M. Chapman, M.D., Neonatal Response to DTP Vaccines, *Public Health Reports*, June, 1958.

FIVE-YEAR FOLLOW-UP STUDY OF MEN WHO RETURNED TO WORK AFTER A MYOCARDIAL INFARCTION

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In a five-year follow-up of men who had a myocardial infarction, 431 returned to some form of gainful employment in an average time of three months after their first infarction. In general, the onset of economic rehabilitation paralleled the functional cardiac status, but many patients returned to work despite symptoms of coronary insufficiency or heart failure. This particularly applied to physicians. Within 5 years, 33% (143 patients) had died or had retired. The younger patients worked longer than the older ones. Sixty-seven per cent of the 143 patients had died. It is of coincident interest that seven men in their eighth decade returned to gainful employment.

Most physicians agree that a great many individuals who survive an acute myocardial infarction can and should make an economic recovery. It is well documented that over 50% of those who recover from a myocardial infarction return to work.[1] Some elect to retire in the absence of disabling symptoms. There are varied reasons for this decision: enticing disability insurance, inability to change work classification, forced retirement on account of age, state of the economy as influencing the number of unemployed, accessability of welfare funds, and the emotional reaction to the illness. In addition, there are occupational hazards which must be avoided by an individual who has had an infarction and which might preclude reemployment. This has been discussed in a previous report.[1b]

There is need for follow-up studies of men who, after their first myocardial infarction, became employable to a degree as to constitute economic rehabilitation. Conner and Holt [2] reported that, of 117 patients with their first attack of coronary thrombosis, 75% were in good health at the end of one year after this attack and 21% at the end of five years. By good health was meant a state of health which permitted the patient to live his accustomed life and to regard himself as essentially well. Not all were entirely free of symptoms, but these symptoms were not sufficient to cause the patient to modify his mode of life or to prevent his working. Levine and Phillips [3] found that 18 (32%) of 56 men with myocardial infarction who had returned to work for a shipbuilding company were still working at the end of a year. Chambers [4] found that over 50% of his patients who survived a myocardial infarction for a year, with or without a recurrence, were working either full or part time. Others have stated that of those who returned to full capacity or who had only partial disability after an infarction, 40% died within five years.[1a] Crain and Missal [5] reported from the Eastman Kodak Company that 65% of 151 reemployed individuals who had myocardial infarction continued to work for five or more years. Master, Jaffe, and Kissane [6] reported that 41% of 200 individuals (men and women) returned to full employment after coronary occlusion and maintained this employment for an average of seven years.

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Nature of Study Group

The present report is a five-year follow-up study of men who returned to work after their first myocardial infarction. Since there were only a few recorded instances in employed women, they were excluded from this study. All the patients were seen in private practice. Only those with characteristic clinical and eletrocardiographic evidence and those whom the onset of the infarction could be determined with certainty were selected. None of the patients received any special long-term medical therapy or surgery designed to improve the coronary artery circulation.

Four hundred thirty-one men met the above criteria. This represents a total of 95% available for follow-up study. The period during which the myocardial infarction had its onset ranged from Jan. 1, 1940, to Jan. 1, 1953, and the patients were followed until Jan. 1, 1958. Previously a five-year work study was done on only 117 patients observed from 1940 through 1944.[7]

Since all the patients were seen in private practice, the majority were in some aspect of business or the professions or were "white collar" workers. There were few "unskilled" laborers.

Results

As to age of the patients at the time of onset of infarction, the majority (80%) were below the age of 60 years. This was to be expected, since older

men are more likely to have been retired or will retire or be unable to work after an infarction. It is of coincident interest that seven men in their eighth decade returned to gainful employment. In the age group 60-69, there were 81 patients; 50-59, 187; 40-49, 120; 30-39, 35; and 20-29, 1.

Within five years 143 (33%) had ceased work due to death or retirement; 288 (67%) worked more than five years after the infarction.

TABLE 1.—*Relation of Age at Onset of Disease to Duration of Work After Infarction*

Age Group, Yr.	Worked Less Than 5 Yr., No.	Worked More Than 5 Yr., No.
20-29	0	1
30-39	9	26
40-49	34	86
50-59	59	128
60-69	37	44
70-79	4	3
Total	143	288

Table 1 shows the age of the patient at the time of the onset of the infarction and the work status at the end of five years. Obviously younger men will work longer than the older ones. It is noteworthy that three patients who had the onset of their infarction after the age of 70 years were still working at the end of five years.

Table 2 lists the duration of work after infarction of the 143 patients who retired or died within five years. The major cause for termination of work was death. In this category is included only those who died suddenly or after only a short illness. Sixty-seven per cent died within five years, whereas in this same interval only 33% retired after returning to work. The yearly deaths were approximately the same for each of the five years. Of those who eventually retired, few did so within the first two years. Some of those who retired subsequently died, but they are not included in the group who died within five years. The detailed causes for death are not listed. In a previous report [7] it was found that cardiovascular disease was responsible for 82% of the deaths which occurred within five years after the patients' returning to work after a myocardial infarction. The exact incidence of death from another myocardial infarction could not be determined, since many patients did not live long enough in their final illness to have electrocardiographic examinations and since an insufficient number of autopsies was performed. Sudden or relatively sudden death occurred in 25% of the patients who died.

We were unable to secure a control group for this study. Those who did not work after the infarction were too ill to return to work, were already retired, or were in the "retirement" age and thus were older than the majority of those who returned to work. Master and Dack [8] found that 53% of 415 individuals who had a myocardial infarction returned to work. The number of subsequent attacks of myocardial infarction, the number of patients who developed congestive failure, or the number of those who subsequently died was no greater in the working group than in those who did not return to work (even though the nonworkers included a large number of extremely ill patients). Reports from work classification units [9] are in accord in that continued regulated employment had no adverse effect on the course of patients with myocardial infarction, but controls are not mentioned. Billings and associates [10] found that the mortality rate for patients with myocardial infarction (not all were studied from the first attack) who were able to return to some type of useful activity was higher than that of the normal population of Tennessee for the first two years after infarction only. After three years it paralleled that for the Tennessee population of the same age, sex, and racial distribution.

Comment

The patients in this study returned to some form of gainful employment in an average time of three months. There were no fixed criteria for the decision to return to work. Each patient had his own physical, psychological, and economic problems which required evaluation. Consultation with employers, personnel managers, and company physicians was valuable in establishing early rehabilitation. The type of disability insurance which the patient has may influence the decision as to when full-time work is resumed. The more liberal the policy, the longer will the individual be tempted to remain away from his job. Since sudden or relatively sudden death can occur in 25% of those who ultimately die, men engaged in work hazardous to their fellow employees or to the public—such as crane operators, bus drivers, and railroad engineers—were encouraged to seek other employment. Time was required to find another job.

TABLE 2.—*Duration of Work After Infarction of 143 Patients Who Retired or Died Within Five Years*

Work Period, Yr.	Retired, No.	Died, No.
0-1	2	23
1-2	7	21
2-3	12	15
3-4	11	17
4-5	15	20
Total	47	96

In general, the onset of economic rehabilitation paralleled the functional cardiac status, but many patients returned to work despite symptoms of coronary insufficiency or heart failure. This particularly applied to physicians. No attempt was made to analyze the duration of work as compared to the functional status of the heart on the patient's return to work. Obviously, the patient who has made a good functional recovery will live and work longer than one who survives the initial impact but is disabled by congestive heart failure, angina pectoris, or a cerebral embolism. It has previously been

stated [10] that the complaints of the patient are the best guide toward his employment and that elaborate hemodynamic studies to determine the integrity of the myocardium or the coronary circulation are not necessary. Others agree that no single physical finding or test can be a prognostic guide in regard to return to work.[9]

Judicial interpretation of the Workmen's Compensation Act can be a deterrent toward the reemployment of individuals who have had an infarction. But none of the patients in this report who had another myocardial infarction or who developed heart failure claimed that it was due to their work and hence was compensable. The individual who could return to work but who claims that he is unable to do so must be treated with psychotherapy.

Summary

A five-year follow-up study was made of 431 men who returned to work after their first myocardial infarction. All occupations were represented, but the majority of patients were in some aspect of business, either in an executive or in a sales capacity, were in a profession, or were "white collar" workers. Eighty per cent were below the age of 60.

Within five years, 33% had ceased work because of death or retirement. The younger patients worked longer than the older ones. Sixty-seven per cent of the 143 patients who ceased work did so because of death. Return to some form of gainful employment occurred in average time of three months. Complaints of the patient were the best guide toward employment. No single physical finding or test can be a prognostic guide in regard to return to work. None of the patients who had another myocardial infarction or who developed heart failure claimed that it was due to their work and hence entitled them to compensation under the Workmen's Compensation Act.

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ERADICATION OF CONTAGIOUS DISEASE.—When Pasteur destroyed the concept of spontaneous generation of infectious disease, the concept of eradication of the causative agents of communicable diseases became inevitable. Etymologically, the word "eradicate" comes from the Latin and means to take out by the roots—to extirpate. Prior to Pasteur, medicine used the verb "eradicate," and the noun, "eradicative," in relation to disease in the individual patient. Today the term "disease eradication" means the complete elimination of all sources of infection or infestation so that, even without all preventive measures, the disease does not reappear. In 1888, Chapin, commenting on Koch's discovery of the tubercle bacillus, boldly declared, "There is no theoretical reason why a purely contagious disease like tuberculosis cannot be exterminated. If we can prevent the spread of contagion at all, we can prevent it entirely." Similar visions of liberating the human race from malaria, yellow fever, hookworm, and other diseases have arisen as the mechanisms of transmission of these diseases have been found and methods of prevention devised.—F. L. Soper, M.D., International Health in the Americas, *The Journal Lancet*, June, 1958.

LONG-TERM RESULTS IN SURGICAL TREATMENT OF PEPTIC ULCER

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Evaluation of results obtained by various forms of surgical treatment for peptic ulcer has been determined for the following categories: (1) postoperative mortality; (2) complications during operation; (3) immediate postoperative complications; and (4) later complications. It is in the last group that the inadequacy of the ideological method of treatment, rather than of technical factors, becomes manifest. Vagotomy lends some, though incomplete, protection against stomal ulcer, when combined with gastrojejunostomy. The addition of vagotomy as an adjunctive procedure to gastric resection appears to protect against stomal ulceration. The long-term results from definitive operations for stomal ulcer using transthoracic vagotomy and/or gastric resection are found to be reasonably satisfying.

In 1946 vagotomy, as advocated by Dragstedt,[1] became an acceptable, though not necessarily an accepted, procedure utilized in the surgical treatment of peptic ulcer in the greater Los Angeles area. It became rapidly apparent to all concerned that, because of the resultant gastric atonia associated with the use of this procedure alone, vagotomy had, of necessity, to be combined with some type of drainage procedure, such as gastrojejunostomy or pyloroplasty.[2] Because of the influence of the more conservative authors of the era, such as Walters [3] and Leahey,[4] many surgeons in this area continued to utilize only the standard gastrectomy in the surgical attack on this disease. Others,[5] including ourselves, believed that combining vagotomy as an adjunctive procedure with gastric resection offered the patient the best opportunity for a long-term cure. Experimental and clinical evidence to support the latter view are commonplace in medical literature [6] and need not be reported here.

Methods and Materials

Realizing that the experience of many years would be required to fully evaluate any forms of treatment for peptic ulcer, we instituted on Jan. 1, 1946, a carefully monitored follow-up of all patients with this disease variously treated surgically in a private hospital of 250 beds in a large metropolitan area.

There were 17 operating surgeons involved, all of whom were either fellows of the American College of Surgeons or certified by the American Board of Surgery, or both. Because the patients were all private and relatively nonitinerant, the follow-up included more than 90%, covering the 10-year period of this report (see table). There were 538 definitive operations performed on 519 patients during the decade which terminated on Jan. 1, 1956. The follow-up study was continued to Jan. 1, 1958, however, so that no patient is reported less than two years postoperatively. Present medical literature contains several similar reports from large university and veterans' hospitals,[7] but we have reason to believe that, because of the very high percentage of follow-up reports obtainable among private patients of permanent residence, the results reported here may be significant.

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Evaluation of results obtained by various forms of surgical treatment in this series has been determined with the following categories: (1) postoperative mortality; (2) complications during surgery; (3) immediate postoperative complications; and (4) later complications. All surgeons are quite familiar with categories 1, 2, and 3, but reemphasis of technical inadequacies of any form of treatment cannot but be of constructive interest to all concerned. However, it is with category 4, later complications, that we are particularly concerned. It is in this group that the inadequacy of the ideological form or method of treatment, rather than of technical factors, becomes manifest. It is in this category that the element of time becomes significant, as anyone studying the findings herein will conclude. Here one finds the failures manifested by recurrent peptic ulceration, objectively manifested by bleeding, perforation, or undisputed roentgenographic evidence or found on surgical exploration. No attempt has been made to evaluate subjective symptomatology.

The various types of peptic ulcers treated surgically during the period of this report are demonstrated in the table. The customary ratio of duodenal to gastric ulcer and of male to female is observed. There is an unusually high incidence of stomal ulcers (6.3%), which we will discuss later.

The over-all postoperative mortality in this series (29, or 5.4%) is higher than one might expect and certainly higher than one might desire. The causes of this mortality will become obvious as the following material is presented. Eleven patients (2%) died of perforation or bleeding without benefit of surgery; 35 (6.5%) died later of other causes; and 51 (9.5%) were lost to follow-up.

Duodenal Ulcer

Gastrectomy Alone for Duodenal Ulcer.—A total of 207 patients (151 male and 56 female) with duodenal ulcer (48.4% of all patients with duodenal ulcer) were treated by orthodox gastric resection without adjunctive procedures. The great majority were treated by typical Billroth 2 procedures, with or without Hofmeister modifications, some anterior and some posterior in about equal ratio. The Billroth 1 operation was utilized in about 10% of the patients. All apparently had "adequate" amounts (50% or more) of the stomach removed. There appeared to be no significant correlation between the type of gastric resection and the immediate or long-term results obtained in this series.

There were 13 postoperative deaths, or an operative mortality of 6.2% in this group (see table). Complications during surgery occurred in five patients (2.4%): injury to the common duct in two, cardiac arrest in one, laryngospasm requiring tracheotomy in one, and hemorrhage in one. Immediate postoperative complications occurred in 49 patients (28%): leakage of the duodenal stump in 7, duodenal fistulas in 3, pancreatitis in 4 (with fistulas in 2), hemorrhage in 8, obstruction of stoma in 16, wound dehiscence in 5, leakage of anastomosis in 1, pulmonary embolism in 4, and myocardial infarction in 1. Later complications, representing the long-term failure of treatment, occurred in 16 (7.7%): recurrent bleeding in 4 (one to four years postoperatively), malfunctioning stomas in 3, and stomal ulcers in 9, or 4.3% (on the average of four years postoperatively).

Vagotomy Alone for Duodenal Ulcer.—There were six patients (all male) in whom vagotomy alone, either transthoracic (two) or transabdominal (four), was performed for duodenal ulcer. They were all done in the "early vagotomy period," in the flush of enthusiasm for a newly publicized procedure. Although this form of treatment resulted in no postoperative mortality, the immediate and later complications were so major as to discourage its use as a primary method of treatment forthwith. Immediate postoperative complications occurred in three (50%): pulmonary embolism in one, gastric atonia in one, and neurogenic ileus in one. Later complications occurred in two (33%): recurrent duodenal ulcer requiring gastric resection in one, five years postoperatively; and persistent gastric atonia requiring gastrojejunostomy in one, one month postoperatively. Transthoracic vagotomy per se, however, still has an active place in the treatment of stomal ulcer and will be discussed further in its proper place.

Pyloroplasty with Vagotomy for Duodenal Ulcer.—Weinberg and associates [7] have for several years advocated pyloroplasty with adjunctive vagotomy as the most satisfactory surgical treatment for duodenal ulcers and have reported excellent results from relatively early follow-up studies on several hundred patients. The impact of their work, however, was apparently lightly felt by the particular surgeons concerned in this report, in that only 15 patients, or 3.5% (11 male and 4 female), were so treated. There were no postoperative deaths and no known later complications after an average of four years. One patient (6.6%) had immediate postoperative complications (wound dehiscence). It is to be noted that though not statistically significant, both the immediate and long-term results in these few patients so treated were excellent.

Gastrojejunostomy Alone for Duodenal Ulcer.—In the 1920's and early 1930's gastroenterostomy was, because of its relatively low mortality for the period and its relatively good early results, the most popular surgical treatment for duodenal ulcer. Then it became apparent that, as time passed, a large percentage of stomal ulcers developed in the patients so treated, and, as Finsterer, Polya, Garlock, and others demonstrated the facility with which gastric resection could be performed, gastroenterostomy was no longer used. However, because of its simplicity and its success as a drainage procedure, many surgeons continued to use it for those patients in whom stenosis at the pylorus resulted from a chronic ulcer. This procedure is acceptable today in the relief of pure stenosis, in the older age group, due to cicatricial scarring of a healed duodenal ulcer. But that this is performed with some hazard even in this age group is demonstrated by our findings in the follow-up of 37 patients (29 male and 8 female) so treated. The average age of this group was 60 years. There was one postoperative death (2.7%). Immediate postoperative complications occurred in three (8%): obstruction of stoma in two and coronary occlusion in one. Recurrence rate in 11, or 30%, as evidenced by recurrent bleeding (in 5 two months to five years later) or stomal ulcer (in 6, or 16.2%, on an average of two and one-half years later), was shown. Obviously the ulcer diathesis was still

Analysis of 538 Cases (in 519 Patients) of Peptic Ulcer

Type of Ulcer	Total Patients, No.	Male, No.	Female, No.	Ratio
Total duodenal	379	300	79	4:1
Total gastric	81	54	27	2:1
Combined	29	19	10	2:1
Channel	18	11	7	11:7
Stomal	31	26	5	5:1
Totals	538	410	128	

prominent in a significant number of patients, regardless of age. For this reason the use of gastrojejunostomy alone for the treatment of stenosing duodenal ulcer is to be discouraged.

Gastrojejunostomy with Vagotomy for Duodenal Ulcer.—Gastrojejunostomy was combined with vagotomy by Dragstedt and others, originally as purely a drainage procedure for the denervated, atonic stomach. Others thought to utilize vagotomy as an adjunctive procedure with gastrojejunostomy in order to deal with the cephalic phase, during which, by way of the vagus nerves, there is hypersecretion of digestive acid. Later evidence has shown that gastrojejunostomy may also tend to favorably influence the gastric or hormonal phase by decompressing the antrum. Whatever the rationale, these two procedures have been combined in the treatment of duodenal ulcer 58 times (in 54 males and 4 females) in this series.

There was no operative mortality, and only one (2%) immediate postoperative complication (obstruction of stoma). The long-term results, however, appear disappointing. There were 10 patients (17%) in whom failure in treatment was manifested by recurrent bleeding (2), malfunctioning stoma (2), recurrent duodenal ulcer (1), or demonstrated stomal ulcers (5, found on the average of four years postoperatively). A stomal ulcer rate of 8.6% is inordinately high. The comparative figure for the previous group in which no vagotomy was done was 16.2%. One wonders, then, whether a complete vagotomy was performed in over 50% of the patients in the latter group. Another point of interesting comparison is the occurrence of stomal ulcers on the average of four years postoperatively in the vagotomized group as against two and one-half years in the group without vagotomy. Apparently, then, vagotomy does lend some, though incomplete, protection against stomal ulcer, when combined with gastrojejunostomy.

Gastrectomy with Vagotomy for Duodenal Ulcer.—On the basis that the most practical manner in which to deal with both the cephalic and antral, or hormonal, phases of the ulcer diathesis would be the addition of vagotomy to gastric resection, many physicians have of recent years advocated this combination. Thirty-four such patients (8%, comprising 29 males and 5 females) are included here. Although the discrepancy in the number of patients is considerable, being 34 as compared to 207, it is of interest that the postoperative mortality is 3% (one patient) in the vagotomized gastrectomy group as compared to a 6% mortality in the group who had only gastrectomy. One sees an equivalent improvement in the immediate postoperative complications, 14.7% (five patients) as compared to 28% in the latter group. (Of these five patients, two had leakage of the duodenal stump, one had acute pancreatitis, one had malfunctioning of the stoma, and one had myocardial infarction.) Of course, it would be absurd to say that the addition of vagotomy to gastric resection reduced the chances for mortality or postoperative complications. This apparent paradox is best explained by the supposition that those few surgeons in this group who utilized the combined procedure were technically superior to those who did not. However, it is important to note that in the eight years in which this type of case has been followed, no recurrence or stomal ulcer has been found (patients were followed from two to eight years, on an average of four and one-half years). The addition of vagotomy as an adjunctive procedure to gastric resection then appears, in this small series at least, to protect against stomal ulceration. The resections in this group were mainly of the "conservative" type, that is, hemigastrectomies.

Repair of Perforated Duodenal Ulcer.—Forty patients (31 male and 9 female) with perforated duodenal ulcers (9.4% of total duodenal ulcers) treated by suture closure are included in this report. During surgery, one patient (2.5%) developed cardiac arrest, treated with massage. Immediate postoperative complications occurred in four patients (10%): fatal peritonitis, circulatory collapse, perforation of an associated gastric ulcer, and massive hemorrhage.

There was a postoperative mortality of 10%, comparing favorably with that of most reported series. On review of the cause of death, it is apparent that only two patients could possibly have benefited from a primary gastric resection. Since elective gastric resection for nonperforated duodenal ulcer carries with it a substantial mortality (6.2% in this series), the routine performance of primary gastric resection for perforated duodenal ulcer seems hardly justified, in spite of recent enthusiasm for this procedure in the literature.[8] At least half of the patients reported in the present series who died entered the hospital in a dying state with a perforation of many hours' duration. We share the opinion of others that gastric resection should be reserved for selected patients with very early perforation and minimal peritoneal contamination, in spite of the fact that nine (22%) of the patients treated by suture closure developed recurrence (recurrent duodenal ulcer, requiring surgery within from one month to four years in eight and recurrent duodenal ulcer treated medically in one).

Combined Ulcers

There was a total of 29 patients (19 male and 10 female) in this series in whom both active duodenal and gastric peptic ulcers were found at surgery. Twenty-six of these were treated by orthodox gastric resection, and the long-term results are essentially the same as reported here for orthodox gastrectomy for duodenal ulcer alone. In other words, the associated gastric peptic ulceration did not tend to significantly alter either favorably or unfavorably the later occurrence of complications. There was one postoperative death (3.4%). Immediate postoperative complications occurred in five patients (17%): wound dehiscence in two, leakage

of the duodenal stump in two, and hemorrhage in one. Later complications occurred in two patients (6.8%): stomal ulcer in one (four years postoperatively) and gastrojejunocolic fistula in one (three years postoperatively). The reader is referred to the results reported hereafter for correlation with the above. It is to be noted also that three further patients with combined ulcers were treated by combined gastrectomy and vagotomy without observed early or later complications.

Gastric Ulcer

Gastrectomy for Gastric Ulcer.—Eighty-five per cent (67 patients) of the peptic gastric ulcers occurring during this period were treated by gastric resection, the remainder by suture of perforation only. There was the usual two-to-one ratio of male to female (45 male and 22 female) and consistently reported low operative mortality (1.5%) after resection. This is because of the comparative simplicity of the technical handling of the uninvolved duodenum. Immediate postoperative complications occurred in three patients (4.5%): leakage of the duodenal stump in two and cerebrovascular accident in one. However, in 67 patients reported here, later complications found on long term follow-up are seen to occur in four patients (6%). Two had stomal ulcers (on an average of three years postoperatively) and two had bleeding. This is a much higher recurrence rate than is usually reported [8] and quoted for the surgical treatment of peptic gastric ulcers. One sees that this figure approximates the recurrence rate observed after gastric resection for duodenal ulcer. No explanation of this discrepancy with the published and quoted medical literature is immediately at hand. One wonders whether the long-term results after gastrectomy for benign gastric ulcer elsewhere might not bear further evaluation. Carcinomatous degeneration was observed in three patients (4.5%). Two of these patients are known to be alive and well eight years after conservative resection.

Repair of Perforated Gastric Ulcer.—Fifteen per cent of the benign ulcers in 12 patients (8 male and 4 female) were perforated on admission to the hospital, and they were treated by simple suture closure. Five of these 12 patients (41.6%) died postoperatively from pulmonary embolus, acute myocardial failure, fatal hemorrhage from an associated duodenal ulcer, reperforation of a sutured ulcer, and peritonitis. Two of the patients who died were under corticosteroid therapy at the time of perforation, a circumstance that certainly contributed to the open perforation and probably to the fatality. Two of the remaining fatalities could conceivably have been prevented had resection been resorted to at the time of the repair of perforation. Three patients (25%) developed recurrent ulceration requiring gastric resection. These findings strongly advocate the performance of primary gastric resection for perforated gastric ulcer, if circumstances permit.

Stomal Ulcer

Thirty-one patients (26 male and 5 female) with stomal ulcers were treated surgically during this 10-year period. These patients represented 5.1% of the total cases of peptic ulcer of all types encountered. However, if one deducts from the total the 29 patients who died postoperatively, the stomal ulcer occurrence rate is increased to 6.3%. As we have seen, there is no significant difference in the rate of stomal ulcer occurrence that follows gastric resection for peptic ulcers of either gastric or duodenal location. Twenty-one cases followed gastrojejunostomy. The average length of time at which stomal ulceration was treated in this group (12.5 years postoperatively) is distorted by the inclusion of two cases occurring in twins 30+ years after gastrojejunostomy in early infancy for pyloric obstruction. We have already noted that two and one-half years is the average time at which stomal ulceration appears. However, one must take into account the fact that this complication may occur at any time during the subsequent lifetime of such a patient.

Ten of the cases followed gastric resection and occurred on the average of 3.5 years postoperatively. These cases represented one-third of the total and were encountered one-half as frequently as stomal ulcers after gastrojejunostomy. These figures indicate grossly the known superiority of gastric resection over gastrojejunostomy in the treatment of peptic ulcer.

The postoperative mortality was 9.7% (3 patients) in the surgical treatment of this group. Of the 21 patients with stomal ulcers that followed gastrojejunostomy, 2 were treated by pyloroplasty (gastrojejunostomy had been done in infancy) and 18 were treated by gastric resection with conventional abdominal approach, with one death. Of the 10 patients with stomal ulcer that followed gastric resection, 5 were treated by transthoracic vagotomy and 2 by re-resection without mortality. Three patients were treated by simple suture of perforation, with one death. The remaining death followed a pyloroplasty with subdiaphragmatic vagotomy.

Recurrence of stomal ulceration occurred in 4 of the 31 patients (12.9%). Two of these followed simple suture of perforation. One followed transthoracic vagotomy, and one followed gastric resection. The over-all long-term results from definitive surgery for stomal ulcer utilizing transthoracic vagotomy and/or gastric resection are seen to be reasonably satisfying. However, prophylaxis against stomal ulcer by the utilization of the combination of these two methods as the primary treatment of peptic ulcer requiring surgery appears definitely indicated.

Summary

A 10-year follow-up study was done of 519 patients with peptic ulcer treated by a variety of surgical methods in a private general hospital of

250 beds. Seventeen operating surgeons were concerned. The long-term results obtained by orthodox gastric resection, vagotomy and gastrojejunostomy, vagotomy and pyloroplasty, and vagotomy and conservative gastric resection have been compared. Stomal ulcer is found to occur with equal frequency after gastrectomy for both gastric and duodenal ulcers.

On the basis of the material presented herein, we conclude that the surgical procedure which offers the peptic ulcer patient the best chance for a long-term "cure" is gastric resection combined with vagotomy.

1930 Wilshire Blvd. (5) (Dr. Pallette).

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OUTPATIENT PASTORAL COUNSELING IN A MEDICAL CENTER

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The North Carolina Baptist Hospital, a teaching hospital of the Bowman Gray School of Medicine of Wake Forest College, employed a minister to work intensively with inpatients as a member of the faculty of the medical school. The outstanding advantage of locating a pastoral counseling service in a medical center is the availability of medical resources. Here comprehensive medicine provides a "team approach" to the individual. Counseling is a religious process in which the individual is helped to realize more nearly the full potentials of his own personality. A promising development that has grown out of this program has been the opportunity for research. It is in this area that institutional chaplains can render a real contribution to the parish minister who lacks the time and does not usually have access to the findings of specialized professional people.

A teaching hospital may be one of the most effective settings for a pastoral counseling referral center. Every minister who attempts to do pastoral counseling faces at one time or another persons who are not mentally ill but whose difficulties are too time-consuming or too involved for him to deal with alone.

The North Carolina Baptist Hospital is the teaching hospital of the Bowman Gray School of Medicine of Wake Forest College. In 1946 the hospital employed a minister to work intensively with inpatients; in 1948 he was made a member of the faculty of the medical school.

Outpatient counseling was not part of the original plan to give pastoral care to hospital patients. As a result of intensified pastoral work on the hospital floor, many patients requested that the chaplain talk with members of their families. Patients being discharged from the hospital occasionally asked to return for counseling. Patients told friends, who began to call for appointments. Later, pastors began referring members of their churches,

From the Department of Pastoral Care, North Carolina Baptist Hospital.

and in 1953 the demand for outpatient counseling reached the point that the hospital administrator was asked to set a policy for the handling of these requests. The hospital administrator recognized that this pastoral counseling service was a means of broadening the ministry of the hospital to its denomination and agreed to provide additional personnel.

Description and Scope of the Service

A description of the outpatient counseling service as it functions at this center is given in the hope that our experience may benefit others. In 1953, when the department began keeping records on the number of outpatient visits for counseling, there were 1,621 visits. In 1954 there were 2,290; in 1955, 2,630; in 1956, 2,804; and in 1957, 3,208.

An analysis of the number of visits per counselee shows that 7.8% came for one visit only; 32.7% from two to four visits, and 32.6% from five to nine visits. From 10 to 19 visits were made by 23.4% of the individuals, and 3.5% came as many as 20 times. The average number of visits for all counselees was seven.

The geographical scope of the outpatient counseling service is wide. Forty-six per cent of the counselees come from outside the county in which the hospital is located. Many regularly come more than 100 miles for each counseling session. At present, persons are coming from three states.

Counseling is done only by men who are qualified by both training and temperament. Rigid psychological tests have been passed by all on the staff. At present, the counseling staff is composed of 13 men, 6 who are permanent staff members and 7 who are fellows or interns, all of whom have had seminary training. These counselors function in their role as ministers—but ministers with special training and experience in understanding human behavior. Special emphasis is placed on the application of spiritual resources to human needs, with the constant recognition that knowledge gained from allied fields is used by the minister only as a tool in making his ministry more effective.

The counselors deal with persons who have typical problems of adjustment, and no attempt is made to handle cases of mental illness. When such patients appear, they are referred to the psychiatric clinic. During the past year about 1 out of 10 counselees was referred for either psychiatric treatment or psychiatric evaluation. Often such referrals are more easily made by a chaplain-counselor than by the local pastor.

The outstanding advantage of locating a pastoral counseling service in a medical center is the availability of medical resources. Here comprehensive medicine provides a "team approach" to the individual. Counselees who come for the first time and who have not had a recent physical examination are often encouraged to do so. The department works closely with the outpatient medical clinic of the hospital and the private diagnostic clinic of the medical school. The cooperation between the medical staff and the chaplains is based on the respect of each profession for the other and the recognition by each of the part the other plays in the comprehensive approach to the patient. This has developed through the years from cooperation in the care of patients in the hospital and has carried over into outpatient counseling.

Types of Counseling

A wide variety of problems is brought to the department, ranging all the way from obvious mental illness to uncertainty in the choice of a vocation. More than one-third of the persons seen during the past year came for marital counseling. Both husband and wife are seen, usually by different counselors, often with the final session together. Another large segment of counseling is labeled "growth counseling"—growth in self-understanding. These persons often come with no specific problem in mind but with a real need for a deeper understanding of their own personalities. This is especially the case of many active pastors and religious workers. The pastor himself often feels the need for a pastor. Religious workers seem to appreciate the fact that the counselor is a minister with a pastoral background and some firsthand understanding of the problems which they confront. Last year, 106 ministers and 24 ministers' wives were seen for counseling.

A glance at the appointment calendar for a recent week gives further indication of the broad range of personal difficulties presented: A man from a nearby town came because he had been unable to control his drinking for eight years after his father's death. A young minister who had been hospitalized for peptic ulcer came for counseling as a result of his contact with a chaplain while a patient. The mother of a retarded child greatly feared having any more children, yet her husband wanted a son. A young engineer's fear of failure became a problem for him when it began to limit his productivity. A couple brought their 14-year-old daughter for counseling because she had been expelled from two schools. Helping the girl led to counseling with both her parents. Two persons were referred by a city rehabilitation center for alcoholic women. A minister of music in a large church came for help with his feelings toward the boys in his choirs. A lawyer sent for counseling a couple who were threatening divorce, and, after being interviewed, both husband and wife were given medical and psychiatric examinations and treatment through the hospital clinic. A supervisor in a local industry came because he was unable to give orders to those under him. And a minister's

bride who had been seen by a physician in the private diagnostic clinic was referred because of her difficulty in adjusting to her new role.

The department looks on counseling as a religious process in which the individual is helped to realize more nearly the full potentials of his own personality. The Christian basis for the counseling approach is the New Testament teaching regarding the eternal worth of human personality. The pastor-counselor works with the same set of facts in the personality background of the individual as other professional persons, with special emphasis on relating these experiences to the individual's fellow man and to God.

When a person comes for the first appointment, he is seen briefly by the chaplain in charge of outpatient counseling for the purpose of screening before assignment to a permanent staff member or a chaplain-intern. The initial interview will determine whether medical consultation is indicated.

Counseling interviews are approximately 50 minutes in length and are usually scheduled one week apart. Toward the end of the counseling relationship, appointments are spaced further apart. All counseling is strictly confidential, and records are guarded in a professional and ethical manner.

When referrals have been made by pastors or local physicians, and in some cases when they are not, the individual is sent back to the pastor or physician at the termination of the counseling. A summary of the person's progress during counseling is sent to the referring agent.

At the present time no fees are charged for counseling. However, at the conclusion of counseling many persons make contributions toward the support of the service. Contributions are never accepted until the counseling relationship is terminated.

Interprofessional Resources

The medical center setting for a counseling service facilitates the training of counselors within the framework of interprofessional relationships. Many times the chaplain-intern counsels with persons who are being seen by the psychiatrist or other members of the healing team. All counseling done by trainees is under close supervision and is paralleled by a teaching staff conference held weekly. Counselors' reports furnish the materials for these staff conferences.

A promising development that has grown out of this program has been the opportunity for research. It is in this area that institutional chaplains can render a real contribution to the parish minister who lacks the time and does not usually have access to the findings of specialized professional people. In 1957, the North Carolina Baptist Hospital's Board of Trustees, through the recommendation of its administrator, authorized the employment of a clinically trained minister to give full time to research in pastoral care. So far as is known, this is the first time that a medical center has employed such a person.

Summary

The function of an outpatient pastoral counseling service in a teaching hospital is that of a referral resource for local physicians and ministers dealing with persons whose difficulties have a religious aspect. As a setting for outpatient pastoral counseling, the medical center offers the advantages of (1) the ready availability of interprofessional resources, (2) the possibility of training pastoral counselors in collaboration with other professional persons, and (3) the feasibility of research in pastoral counseling.

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PITUITARY ADENOMAS.—The most frequent question which has been raised as to the advisability of irradiation for pituitary tumors relates to any possible damage to that portion of the brain in the vicinity of the growth. In all the years we have been following the patients . . . no evidence has ever been disclosed to support such an assumption. The amount of radiation delivered to the tumor has always been kept well below that to which normal brain cells would be sensitive. It is felt by some that radiation is likely to cause hemorrhage into an adenoma. A few instances of such an occurrence were present in the earlier years of our experience, but incidents of this kind have practically disappeared since we have been giving smaller doses over a greater length of time. In a very small number of patients a slight hemorrhage has at times been suspected, but by careful checking of the visual fields at weekly intervals, their vision has gradually cleared up without the necessity of operating. We feel that the tendency of hemorrhage to occur is definitely related to the larger daily doses which were given originally. This is a possibility to be kept in mind, however, and, obviously, if serious and rapid visual loss should occur during treatment or subsequently, prompt operative intervention is mandatory.—Gilbert Horrax, M.D., Treatment of Pituitary Adenomas, *A. M. A. Archives of Neurology & Psychiatry*, January, 1958.

ESOPHAGITIS AS A CAUSE OF UPPER ABDOMINAL PAIN

Lionel M. Bernstein, M.D., Ph.D., Ralph Pacini, M.D., Robert C. Fruin, M.D.
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The acid perfusion test indicated an esophageal origin of symptoms limited to the abdomen in patients with mild degrees of inflammation who had no radiologic abnormality of the esophagus and in whom esophageal origin of symptoms would not have been otherwise recognized. The test may also delineate in which organ symptoms originate when more than one organ is involved. A positive response in a patient with symptoms but without endoscopic abnormality has been called pseudoesophagitis, suggesting that microscopic abnormalities may be present underlying the symptoms. Gastroduodenal ulcer does not, per se, give a positive test for esophagitis. In a group with negative responses, possible false-negative responses were present. It is in the interpretation of negative responses in a small percentage of cases that the fallibility of the clinical test lies. On the other hand, a positive response (whether it duplicates or is unrelated to the clinical complaints) gives helpful information.

Abdominal pain without demonstrable etiology is a common problem confronting physicians. In a recent study[1] it was found that some patients with esophagitis had symptoms limited to the abdomen (not extending above the level of the xiphoid). The present investigation was designed to evaluate the possibility that unrecognized esophagitis might be a frequent cause of abdominal pain in patients in whom clinical and radiologic investigations reveal no abnormalities.

A controlled test[1] which elicited the symptoms of esophagitis by perfusion of the esophagus with 0.1*N* solution of hydrochloric acid was recently described. This test to differentiate symptoms of esophagitis, angina pectoris, and other chest and abdominal pain was performed by perfusing saline or acid solutions through plastic tubes into either the esophagus or the stomach. The response was considered positive (esophageal origin of symptoms) if delivery of the acid into the esophagus elicited pain, burning, and/or associated symptoms, whereas delivery of control saline solution did not. The Palmer test[2] (delivery of acid into the stomach) has long been used to reproduce gastroduodenal ulcer symptoms. Because acid delivered into the esophagus ran into the stomach, criteria were established to differentiate gastroduodenal from esophageal origins of symptoms. The reproduction of symptoms of esophagitis with the test has been confirmed by Grossman and Tuttle.[3]

In the initial study the test objectively reproduced the clinical symptoms of esophagitis. In some patients the diagnosis of esophageal origin of symptoms was confirmed by endoscopic evidence of esophagitis, whereas in others no endoscopic abnormality was found. Those in the latter group with conditions arbitrarily termed pseudoesophagitis were believed probably to have lesser degrees of esophagitis, a belief which is in consonance with the known high incidence of microscopic evidence of esophagitis in grossly normal appearing organs.[4]

That the test administration of 200 ml. of 0.1*N* hydrochloric acid solution during a 30-minute period is a harmless diagnostic procedure was shown[1b] by its failure to elicit symptoms or esophagoscopic abnormality in normal subjects, the absence of either electrocardiographic changes or cardiac pain in patients with coronary artery disease with or without angina, and the lack of recurrence of gastrointestinal bleeding in patients with recent gross bleeding episodes.

That esophageal sensations may extend from the chest into the abdomen has been known, as has the abdominal localization of experimentally induced esophageal pain.[5] However, the differential diagnosis of clinical symptoms limited to the abdomen has not generally included the possibility of esophageal disease. Because esophagitis is rarely accompanied by x-ray abnormalities[1b] it seemed possible that esophagitis might be the cause of symptoms limited to the upper abdomen in some patients whose physical examinations and gastrointestinal x-ray examinations were normal. To investigate this possibility the test for esophagitis was performed on 20 patients who had a diagnosis of upper abdominal pain, cause undetermined. In each of these cases, there were no gastrointestinal x-ray or other abnormalities to explain the symptoms. For comparison, the test was also performed on 13 pa-

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tients with gastrointestinal x-ray abnormalities. Results of the tests were related to esophagoscopic examinations performed in most cases.

Methods

Esophagoscopy.—Esophagoscopy was performed with the Eder-Hufford esophagoscope. Notations were made as to the location and severity of granularity, erythema, and varices. In these cases, there were no instances of severe, ulcerating esophagitis. The endoscopic diagnoses were agreed on by at least two observers who were unaware of the acid perfusion test response in most instances.

Test for Esophagitis.—The test for esophagitis was performed as previously described.[1b] In all cases but one, two plastic tubes were used, one in the esophagus (30-35 cm. from the nares) and the other in the stomach. Acid or saline solutions were delivered from intravenous fluid bottles hung behind the patient through either tube, changes being made without the patient's knowledge. After administration of the control saline solution (6-7.5 ml. per minute for 10-15 minutes), the 0.1 *N* hydrochloric acid solution was administered for a minimum of 30 minutes at 6-7.5 ml. per minute or until severe or typical discomfort was produced. In many instances, the duration and/or rate of acid perfusion were increased. The criteria previously described [1b] which were used to differentiate esophageal from gastroduodenal origins of induced symptoms are as follows:

A. Distribution of Symptoms: Midline symptoms extending above the level of the xiphoid cannot be considered to be of gastric, duodenal, or small intestinal origin [5] and are therefore presumably of esophageal origin. However, since upper abdominal pain may be of gastric, duodenal, small intestinal, or esophageal origin, this criterion does not localize the origin in patients with solely abdominal distribution of symptoms.

B. Rapidity of Disappearance of Symptoms After Cessation of Esophageal Acid Administration: Cessation of acid delivery for a few minutes allows the acid stimulus to be removed quickly from the esophagus, while the intragastric pH is not altered significantly. If the symptoms are in fact produced by alteration of pH, disappearance of symptoms within a few minutes after cessation of acid perfusion indicates that the symptoms must have originated in the esophagus rather than the stomach.

C. Rapidity of Disappearance of Symptoms After Antacid Administration: A small dose of administered antacid effects changes in esophageal and gastric pH qualitatively similar to cessation of acid administration (see B). Rapid disappearance of symptoms after antacid administration indicates esophageal rather than gastric origin of symptoms.

D. Repetitive Production and Relief of Symptoms: Repetitive production of symptoms by acid administration and relief of symptoms by cessation of acid administration or administration of antacids reinforces criteria B and C. In these repetitive circumstances, the small increments of acid and antacid can alter the pH of the esophageal but not of the entire gastric contents to extremes of pH.

E. Introduction of Acid into Stomach for Comparative Effects: The esophageal origin of solely abdominal symptoms is indicated by reproduction of symptoms with esophageal perfusion but not with gastric delivery of acid. Thus, esophageal acid administration initially (and repetitively) causes symptoms which are relieved by stopping acid flow; the acid then delivered directly into the stomach causes no symptoms; then readministration of acid into the esophagus repetitively causes the abdominal symptoms. The failure of acid delivered directly into the stomach to produce symptoms, whereas, both immediately before and after, acid delivered into the esophagus elicited symptoms, must be considered as the most crucial evidence of their esophageal origin.

Classification of Results

Results of the test were characterized as (1) positive: reproduction of the clinical abdominal symptoms originating in the esophagus, (2) negative: failure of test to elicit symptoms, and (3) positive-unrelated: production of chest symptoms from an esophageal source which were unrelated to the abdominal complaints being investigated. Thus, for this report, the abdominal symptoms not being reproduced by the test, positive-unrelated response represents a negative response to the test in regard to the investigated complaints.

The acid perfusion test for esophagitis was performed on 33 patients, of whom 24 were examined esophagoscopically. Of the 20 patients with the diagnosis of abdominal pain, cause undetermined (having normal gastrointestinal x-ray examinations), the test was positive in 10 (cases 1-10), negative in 7 (cases 11-17), and positive-unrelated in 3 (cases 18-20). Of the 13 patients with definite gastrointestinal x-ray abnormalities, the test was positive in four (cases 21-24), negative in eight (cases 25-32), and positive-unrelated in one (case 33).

The table summarizes the ages; clinical, x-ray, and esophagoscopic diagnoses; and results of the tests performed. Figure 1 presents the distribution of symptoms in the patients with negative x-ray findings but with abdominal pain of esophageal origin (cases 1-10). Figure 2 indicates the abdominal symptoms of esophageal origin in patients with abnormal x-ray findings of the gastrointestinal tract lesions which were asymptomatic and unrelated to the patient's present symptoms (cases 21-24).

Results of Tests for Esophagitis

Patients with Abdominal Pain, Cause Undetermined.—There were 20 patients with a diagnosis of abdominal pain, cause undetermined. These patients showed no gastrointestinal x-ray abnormalities.

Data from Tests for Esophagitis in Thirty-three Patients with Abdominal Pain

Case No.	Age, Yr.	Clinical Diagnosis*	X-ray Diagnosis†	Esophagoscopic Findings‡			Esophagitis Test§	
				Erythema	Granularity	Varices	Response	Criteria of Esophageal Origin
Group with No Significant Gastro-Intestinal X-ray Abnormalities								
Positive Tests								
1	25	Abdominal pain, e.u.; peptic ulcer (history)	Prolapse of antral mucosa	L/4	L/4	...	+	B,D,E
2	32	Abdominal pain, e.u.; peptic ulcer (history)	Normal	L/4	L/4	...	+	B,D,E
3	25	Abdominal pain, e.u.; duodenal ulcer (history)	Normal	L/2	L/3	L/2	+	B,D,E
4	28	Abdominal pain, e.u.	Normal	L/2	L/2	L/2	+	B,D,E
5	32	Abdominal pain, e.u.	Normal	L 2/3	L 2/3	L 2/3	+	B,D,E
6	33	Abdominal pain, e.u.; peptic ulcer (history)	Normal	L/2	...	L/2	+	B,C,D,E
7	31	Abdominal pain, e.u.	Normal	...	...	M/3	+	B,D
8	33	Pneumonia, abdominal pain, e.u.	Normal	...	L/4	...	+	B,D,E
9	40	Chronic bronchitis; abdominal pain, e.u.	Normal	...	...	3/3	+	B,D,E
10	38	Abdominal pain, e.u.	Normal	Not examined	...	...	+	B,D,E
Negative Tests								
11	61	Abdominal pain, e.u.	Normal	...	...	L 2/3	−	...
12	42	Abdominal pain, e.u.	Normal	...	...	L/2	−	...
13	42	Peptic ulcer (history) Abdominal pain, e.u.	Normal	Normal	...	...	−	...
14	59	Abdominal pain, e.u.	Normal	...	...	L/3	−	...
15	34	Cirrhosis; abdominal pain, e.u.; superficial gastritis (on gastroscopy)	Prolapse of antral mucosa	...	...	L/2	−	...
16	41	Abdominal pain, e.u.	Normal	L/4	L/3	L/3	−	...
17	61	Emphysema; arthritis; chest and abdominal pain, e.u.	Duodenal diverticulum	Not examined	...	...	−	...
Positive Unrelated Tests								
18	40	Abdominal pain, e.u.	Normal	Normal	...	...	+unrel.	A,B
19	45	Abdominal pain, e.u.; gastrointestinal bleeding, e.u.	Prolapse of antral mucosa	Not examined	...	...	+unrel.	A,C
20	35	Abdominal pain, e.u.; coronary artery disease	Prolapse of antral mucosa	Not examined	...	...	+unrel.	A,B,D
Group with Gastro-Intestinal X-ray Abnormalities								
Positive Tests								
21	30	Duodenal ulcer	Duodenal deformity	3/3	...	3/3	+	B,D,E
22	68	Abdominal pain, e.u.; possible gall bladder disease	Prolapse of antral mucosa; Faint visualization of gallbladder (3 times)	...	L/3	...	+	B,C,D,E
23	70	Pneumonia; duodenal ulcer; hiatus hernia	Large hiatus hernia; duodenal deformity	Normal	...	...	+	B,D,E
24	45	Cholelithiasis; cholecystitis	Cholelithiasis	Not examined	...	...	+	B,C,D,E
Negative Tests								
25	49	Duodenal ulcer	Duodenal deformity	3/3	...	...	−	...
26	26	Duodenal ulcer; anxiety state	Duodenal deformity	L/3	L/3	...	−	...
27	47	Coronary artery disease; hiatus hernia; prepyloric ulcer	Traction diverticulum; hiatus hernia; prepyloric ulcer	...	L/4	...	−	...
28	60	Duodenal ulcer; chronic recurrent pancreatitis; hypertensive cardiovascular disease	Duodenal deformity; pancreaticolithiasis	Normal	...	...	−	...
29	38	Duodenal ulcer; hiatus hernia	Duodenal deformity; hiatus hernia	...	...	L/2	−	...
30	29	Duodenal ulcer; anxiety state	Duodenal deformity	Not examined	...	...	−	...
31	51	Duodenal ulcer	Duodenal and antral deformities	Not examined	...	...	−	...
32	40	Duodenal ulcer; gastric diverticulum	Duodenal deformity; gastric diverticulum	Not examined	...	...	−	...
Positive-Unrelated Test								
33	24	Duodenal ulcer	Duodenal ulcer niche	Not examined	...	...	+unrel.	A,B,D

* Clinical diagnoses made before performance of esophagitis test or esophagoscopy. Abdominal pain, e.u. (cause undetermined), was present; diagnosis was made in absence of diagnostic x-ray abnormalities. If duodenal deformity were present and the history were not incompatible, the diagnosis of duodenal ulcer was made.

† Reported x-ray examinations include abnormal findings of upper gastrointestinal series and esophageal fluoroscopy done in all 33 patients, esophagram in 28, and cholecystogram in 26. Reported abnormalities indicate remainder of examinations were normal.

‡ For localizing positive findings: L/4, lower fourth; L 2/3, lower two thirds; M/3, middle third; etc. Varices refers to any grossly visible esophageal veins.

§ Responses to test: +, positive; −, negative; + unrel., positive-unrelated. See text for definition of responses and for definition of criteria of esophageal origin of responses.

Positive Tests: The acid perfusion test for esophagitis was positive in 10 of the 20 patients categorized as having abdominal pain, cause undetermined (see table). Of the 10 patients with a positive result from the test there was endoscopic evidence of esophagitis in eight (cases 1-8); normal endoscopy (pseudoesophagitis) in one (case 9); and one was not examined (case 10). The endoscopic abnormalities in eight of the nine examined confirmed the results of the acid perfusion test.

The above results demonstrate that symptoms limited to an upper abdominal distribution can be of esophageal origin and that, in fact, they commonly are. Indeed, esophagitis, as frequently as

duodenal ulcer, was found to be the cause of abdominal symptoms during the period of this study. In these cases the diagnosis of esophagitis was made after the esophageal acid perfusion test and esophagoscopy were performed. Prior to the performance of the acid test and endoscopy, the causes of abdominal pain had been undetermined.

Some of these patients might have been considered by some physicians to have ulcer disease (without the abnormality being recognized radiologically) if the history were not incompatible and if response to antacid therapy were good; some might have been considered to have functional disorders if the examiner were impressed by the degree of emotional instability, anxiety, and severity of personal problems and if response to antacid therapy were equivocal or poor; and some might have been given a diagnosis of abdominal pain.

Treatment with atropine seemed to be of benefit during this period. Severe symptoms subsequently recurred for one year (1947) and for two years (1953-1954), during which periods several additional investigations were unrewarding. No treatment relieved the symptoms. Since 1955 the symptoms had been mild to moderate, intermittent, occurring a few times weekly, have not been clearly related to exercise, position, foods (except aggravation by coffee), or time of eating, and have been inconsistently relieved by antacids. Despite 10 complete gastrointestinal x-ray examinations, numerous electrocardiograms, and clinical examinations during a 15-year period, the cause of symptoms had remained undetermined.

The esophagitis test was performed. The typical clinical symptoms were produced after four minutes of esophageal acid perfusion and were relieved within two minutes after cessation of acid flow. The symptoms were again produced within one minute after restarting acid perfusion of the esophagus and were relieved within one minute after cessation of perfusion. After the repetitive production of symptoms by esophageal acid perfusion, the acid was delivered directly into the stomach for 15 minutes without eliciting

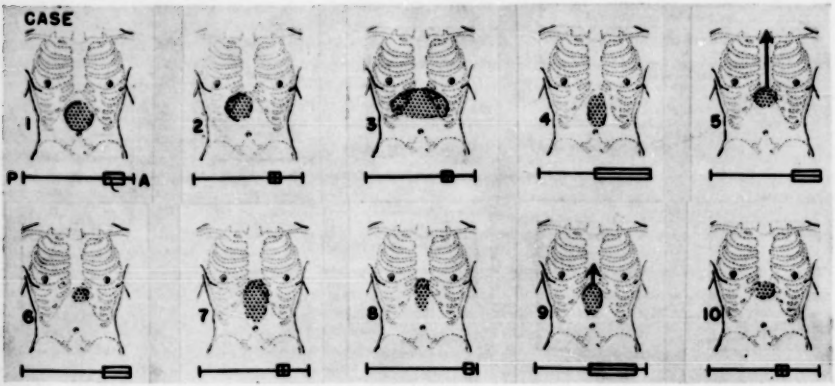

Fig. 1.—Abdominal distribution of clinical symptoms originating in esophagus and reproduced by esophageal acid perfusion test in patients without other gastrointestinal disease (cases 1-10). Arrow indicates radiation during test which was not part of clinical complaint. P and A represent, respectively, posterior and anterior body walls for localization of symptoms in this dimension.

cause undetermined. The acid perfusion test (corroborated by esophagoscopy) gave an objective means for indicating the specific organic lesion, esophagitis, as the underlying cause of the symptoms in this group which would otherwise have remained undiagnosed, or erroneously diagnosed. One illustrative case report is presented.

A 38-year-old internist (case 10) had mild, intermittent, vague epigastric and subxiphoid symptoms beginning 20 years ago. The first symptoms of significant severity (burning epigastric pain) began in 1943, at which time the patient had tarry stools for three days. At the time, complete gastrointestinal investigation revealed no abnormalities. In the next 18 months, symptoms which were not clearly related to types of foods or mealtimes and which were inconsistently relieved by antacids occurred two to three times every day. During this period several complete investigations, including repeated radiologic and two gastroscopic examinations, revealed no abnormality.

symptoms. The acid was then again perfused into the esophagus and was followed within 30 seconds by recurrence of symptoms which again subsided within one minute after cessation of acid flow. The elicitation of symptoms with restarting esophageal acid perfusion and their rapid subsidence after cessation of flow was repeated two additional times. The esophageal origin of the elicited symptoms was demonstrated by criteria B, D, and E.

The distributions of the main abdominal complaints of esophageal origin in cases 1 to 10 are shown in figure 1. The symptoms generally were localized in the epigastrium, were usually in the midline, but occasionally more to either right or left, ranged from a narrow to a wide area across the upper abdomen, and were always localized in the anterior half of the abdomen. The history of these patients with esophagitis symptoms localized to the upper abdomen was not significantly different from the history of patients with symptoms

of gastroduodenal disease. Indeed, the diagnosis of ulcer had been made previously in half of the patients. The symptoms were described as being gnawing, aching, burning, bloating, gas, or tearing pains. The symptoms ranged from mild and transient to extremely severe and prolonged.

The lack of a clear relationship between severity of symptoms and inflammation has been noted.[6] The symptoms generally occurred one-half to three hours after meals; were usually relieved to some extent by food or alkali; and were occasionally initiated by spices, raw vegetables and fruits, fried foods, or coffee. There was relationship of symptoms to the recumbent position in 5 of the 10 patients, of whom 2 had night pain. Nausea or occasional vomiting, relief of symptoms by eructation, mild upper abdominal tenderness, and history of upper gastrointestinal bleeding (3 months to 14 years previously) were each present in half the cases. Weight loss occurred in only one patient (25 lb. [11 kg.], case 1). There were no complaints of dysphagia.

Negative Tests: The acid perfusion test for esophagitis was negative in seven patients (cases 11-17) categorized as having abdominal pain, cause undetermined (see table). Of these, there was no endoscopic evidence of esophagitis in five (cases 11-15) of six examined. Due to negative tests and normal endoscopic findings in these five cases, the diagnoses of the causes of the abdominal pains remained undetermined. In case 16, the endoscopic evidence of esophagitis in the presence of a negative test suggests that the pain was not of esophageal origin. However, ulcer management may have been in effect long enough to allow subsidence of the esophagitis with conversion to a negative test response.

Over all, the negative responses of the test in these seven patients let the cause of abdominal symptoms remain undetermined. Excluding one possible false-negative result (case 16), an esophageal cause of the symptoms was excluded.

Positive-Unrelated Tests: In three patients (cases 18-20) the acid perfusion test elicited chest symptoms which were different from and unrelated to the investigated abdominal complaints (see table). The one (case 18) examined endoscopically had no evidence of esophagitis. In these three patients, the induction of esophageal symptoms limited to the chest indicated the esophagus not to be the origin of the clinical complaints.

Summary: Of 20 patients with the diagnosis of abdominal pain, cause undetermined (with normal gastrointestinal x-ray examinations), the symptoms were shown by the acid perfusion test to be esophageal in origin in 10. Corroborative evidence (endoscopic abnormalities) was found in eight of nine of these patients examined. Negative or positive-unrelated responses occurred in the remaining 10, suggesting that the esophagus was not the origin of symptoms. Over all, the test was of positive diagnostic value in half of these cases of previously undiagnosed cause of abdominal pain.

Patients with Abdominal Pain and Gastrointestinal X-ray Abnormalities.—In the original presentation [15] of the esophagitis test, there were seven patients with duodenal ulcer or deformity. In three of these patients, chest symptoms of associated esophageal disease were elicited; but the test failed to elicit abdominal pain in any of the seven, indicating that duodenal ulcer disease itself does not give a positive test. To further evaluate the absence of a positive response from ulcer (or gallbladder) disease, the test was performed on an additional 13 patients with abnormal gastrointestinal x-ray findings (see table).

Positive Tests: The acid perfusion test for esophagitis was positive in 4 of the 13 patients who had

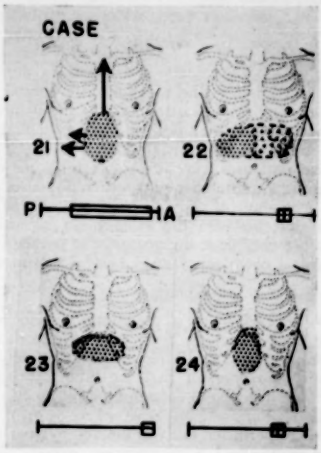

Fig. 2.—Abdominal distribution of clinical symptoms originating in esophagus and reproduced by esophageal acid perfusion test in patients with gallbladder or duodenal ulcer disease (cases 21-24). Fine stippling represents main complaint and gross stippling less common complaint. Localization of symptoms is indicated as in figure 1.

abnormal gastrointestinal x-ray findings (see table). In these four (cases 21-24), the clinical abdominal symptoms were attributed to the diagnoses of, respectively, duodenal ulcer, possible gallbladder disease, duodenal ulcer, and cholecystitis-cholelithiasis. In each of these cases, a positive test demonstrated clearly that the symptoms were esophageal in origin. Of three patients examined endoscopically, esophagitis was found in two (cases 21 and 22) and not in one (case 23). Thus, in these patients, the symptoms originated in an organ without x-ray abnormalities rather than in the organ where x-ray abnormalities were found.

Negative Tests: In eight patients (cases 25-32) having gastric or duodenal ulcer or deformity on x-ray examination, the acid perfusion test was negative (see table). This demonstrates that gastro-

duodenal ulcer, was found to be the cause of abdominal symptoms during the period of this study. In these cases the diagnosis of esophagitis was made after the esophageal acid perfusion test and esophagoscopy were performed. Prior to the performance of the acid test and endoscopy, the causes of abdominal pain had been undetermined.

Some of these patients might have been considered by some physicians to have ulcer disease (without the abnormality being recognized radiologically) if the history were not incompatible and if response to antacid therapy were good; some might have been considered to have functional disorders if the examiner were impressed by the degree of emotional instability, anxiety, and severity of personal problems and if response to antacid therapy were equivocal or poor; and some might have been given a diagnosis of abdominal pain.

Treatment with atropine seemed to be of benefit during this period. Severe symptoms subsequently recurred for one year (1947) and for two years (1953-1954), during which periods several additional investigations were unrewarding. No treatment relieved the symptoms. Since 1955 the symptoms had been mild to moderate, intermittent, occurring a few times weekly, have not been clearly related to exercise, position, foods (except aggravation by coffee), or time of eating, and have been inconsistently relieved by antacids. Despite 10 complete gastrointestinal x-ray examinations, numerous electrocardiograms, and clinical examinations during a 15-year period, the cause of symptoms had remained undetermined.

The esophagitis test was performed. The typical clinical symptoms were produced after four minutes of esophageal acid perfusion and were relieved within two minutes after cessation of acid flow. The symptoms were again produced within one minute after restarting acid perfusion of the esophagus and were relieved within one minute after cessation of perfusion. After the repetitive production of symptoms by esophageal acid perfusion, the acid was delivered directly into the stomach for 15 minutes without eliciting symptoms. The acid was then again perfused into the esophagus and was followed within 30 seconds by recurrence of symptoms which again subsided within one minute after cessation of acid flow. The elicitation of symptoms with restarting esophageal acid perfusion and their rapid subsidence after cessation of flow was repeated two additional times. The esophageal origin of the elicited symptoms was demonstrated by criteria B, D, and E.

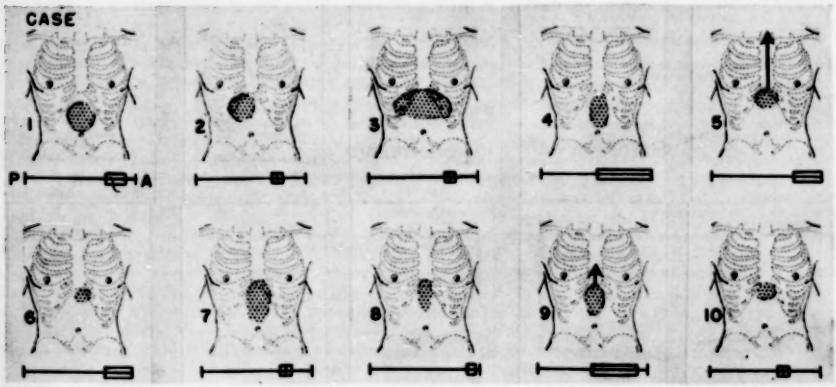

Fig. 1.—Abdominal distribution of clinical symptoms originating in esophagus and reproduced by esophageal acid perfusion test in patients without other gastrointestinal disease (cases 1-10). Arrow indicates radiation during test which was not part of clinical complaint. P and A represent, respectively, posterior and anterior body walls for localization of symptoms in this dimension.

cause undetermined. The acid perfusion test (corroborated by esophagoscopy) gave an objective means for indicating the specific organic lesion, esophagitis, as the underlying cause of the symptoms in this group which would otherwise have remained undiagnosed, or erroneously diagnosed. One illustrative case report is presented.

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The lack of a clear relationship between severity of symptoms and inflammation has been noted.[9] The symptoms generally occurred one-half to three hours after meals; were usually relieved to some extent by food or alkali; and were occasionally initiated by spices, raw vegetables and fruits, fried foods, or coffee. There was relationship of symptoms to the recumbent position in 5 of the 10 patients, of whom 2 had night pain. Nausea or occasional vomiting, relief of symptoms by eructation, mild upper abdominal tenderness, and history of upper gastrointestinal bleeding (3 months to 14 years previously) were each present in half the cases. Weight loss occurred in only one patient (25 lb. [11 kg.], case 1). There were no complaints of dysphagia.

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Over all, the negative responses of the test in these seven patients let the cause of abdominal symptoms remain undetermined. Excluding one possible false-negative result (case 16), an esophageal cause of the symptoms was excluded.

Positive-Unrelated Tests: In three patients (cases 18-20) the acid perfusion test elicited chest symptoms which were different from and unrelated to the investigated abdominal complaints (see table). The one (case 18) examined endoscopically had no evidence of esophagitis. In these three patients, the induction of esophageal symptoms limited to the chest indicated the esophagus not to be the origin of the clinical complaints.

Summary: Of 20 patients with the diagnosis of abdominal pain, cause undetermined (with normal gastrointestinal x-ray examinations), the symptoms were shown by the acid perfusion test to be esophageal in origin in 10. Corroborative evidence (endoscopic abnormalities) was found in eight of nine of these patients examined. Negative or positive-unrelated responses occurred in the remaining 10, suggesting that the esophagus was not the origin of symptoms. Over all, the test was of positive diagnostic value in half of these cases of previously undiagnosed cause of abdominal pain.

Patients with Abdominal Pain and Gastrointestinal X-ray Abnormalities.—In the original presentation [18] of the esophagitis test, there were seven patients with duodenal ulcer or deformity. In three of these patients, chest symptoms of associated esophageal disease were elicited; but the test failed to elicit abdominal pain in any of the seven, indicating that duodenal ulcer disease itself does not give a positive test. To further evaluate the absence of a positive response from ulcer (or gallbladder) disease, the test was performed on an additional 13 patients with abnormal gastrointestinal x-ray findings (see table).

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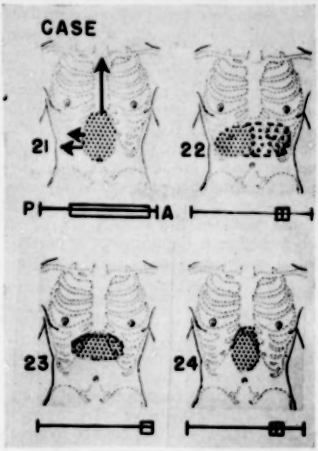

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abnormal gastrointestinal x-ray findings (see table). In these four (cases 21-24), the clinical abdominal symptoms were attributed to the diagnoses of, respectively, duodenal ulcer, possible gallbladder disease, duodenal ulcer, and cholecystitis-cholelithiasis. In each of these cases, a positive test demonstrated clearly that the symptoms were esophageal in origin. Of three patients examined endoscopically, esophagitis was found in two (cases 21 and 22) and not in one (case 23). Thus, in these patients, the symptoms originated in an organ without x-ray abnormalities rather than in the organ where x-ray abnormalities were found.

Negative Tests: In eight patients (cases 25-32) having gastric or duodenal ulcer or deformity on x-ray examination, the acid perfusion test was negative (see table). This demonstrates that gastro-

duodenal ulcer disease does not, per se, give a positive esophagitis test. The fact that of five patients (cases 25-29) examined endoscopically, three (cases 25-27) had evidence of esophagitis, suggests that long standing ulcer therapy had controlled the coincident esophagitis and converted the test to a negative response. These also may be considered to be possible false-negative responses.

Positive-Unrelated Test: One patient (case 33) who had an active duodenal ulcer demonstrated radiologically had nonrelated chest pain induced by the acid perfusion test (see table). The abdominal pain was not induced.

Summary: Of 13 patients with x-ray abnormalities of stomach, duodenum, or gallbladder whose abdominal symptoms were previously attributed to these x-ray abnormalities, the acid perfusion test demonstrated in four cases that the suspected organs were asymptomatic and that the symptoms were originating in the radiologically normal appearing esophagus. Gastroduodenal ulcer disease does not, per se, give a positive test for esophagitis. In the group with negative responses, possible false-negative responses were present in three patients. It is in the interpretation of negative responses in a small percentage of cases that the fallibility of the clinical test lies. On the other hand, a positive response (whether it duplicates or is unrelated to the clinical complaints) gives helpful information.

Comment

Technique.—Because of the failure of saline solution to elicit symptoms, it is reasonable to shorten the control period to 10 minutes. This is adequate to assure the operator that the tube is properly placed and also allows enough time for recognition of hyperreactors.

The acid perfusion test was devised to have a 30-minute esophageal acid perfusion period.[1b] This duration was established arbitrarily. The possibility existed that a positive response might require a greater acid stimulus than was provided, so either, or both, duration and rate of acid administration were increased in many patients who gave a negative response after 30 minutes. Of the 14 positive responses (cases 1-10, 21-24), 11 were positive within 30 minutes and the other 3 within an additional 10 minutes. Three of four patients with positive-unrelated responses also required more than 30 but less than 40 minutes of acid perfusion. Of the 15 patients with negative responses (cases 11-17, 25-32), the duration of acid perfusion in 9 was increased to from 38 to 70 minutes, with the rate of perfusion in some being at twice the usual rate. Thus, prolongation of the acid perfusion beyond 30 minutes will give an occasional additional positive response.

To reduce the time required to perform the test, it is suggested that, if no response has occurred after 15 minutes of acid perfusion, the rate of acid delivery be doubled (from 120 to 240 drops per minute) for the remaining 15 minutes and that the test response be called negative after 30 minutes of acid perfusion. Negative responses were still obtained in some patients who did not have esophagitis, despite much greater prolongation of perfusion.

Interpretation of Responses.—The responses were evaluated with respect to the criteria (A-E) of esophageal origin of abdominal symptoms. In every instance where criterion E (comparison of esophageal with intragastric acid delivery) was fulfilled, so, too, were criteria B and D. In no case were criteria B and D positive with criterion E being negative. Therefore, it is believed that criteria B and D are established as adequate by themselves to demonstrate the esophageal origin of elicited abdominal symptoms. Thus, repetitive induction of symptoms by acid perfusion and repetitive relief of symptoms by cessation of acid perfusion (and/or administration of antacid) constitute reliable evidence of the esophageal origin of symptoms. It is suggested that the double tube technique which allows separate administration of acid into the stomach be abandoned and that the technique using a single tube in the esophagus be used. This will considerably shorten the duration of the test, making it more practical for clinical use.

A negative response in the presence of endoscopic evidence of esophagitis is a false-negative response. This may indicate healing and reduced sensitivity of the esophagitis, or it may indicate unreliability of the test in a small percentage of cases. A second type of false-negative response is one in which delivery of acid to either stomach or esophagus elicits symptoms. This may occur in a patient with esophagitis when frequent regurgitation of acid from the stomach into the esophagus elicits the esophageal abdominal symptoms during the gastric acid delivery period. This occurred in only one patient (case 25), who had erythema of the esophagus and a deformed duodenal bulb. Thus, symptoms which might have been originating in the esophagus could not be so interpreted.

A positive response in a patient with symptoms but without endoscopic abnormality has been called pseudoesophagitis, suggesting that microscopic abnormalities may be present underlying the symptoms. Thus, no false-positive responses are reported.

The induced chest symptoms which were not related to the abdominal complaints being investigated (positive-unrelated response) were (1) symptoms of esophagitis and (2) symptoms never previously experienced by the patient (in which case the response could be called false-positive). In either case, the test induction of esophageal symptoms allowed comparison with the clinical complaints and exclusion of esophageal origin of the symptoms.

Diagnostic Value.—The test indicated an esophageal origin of symptoms in patients with mild degrees of inflammation who had no radiologic abnormality of the esophagus and in whom esophageal

origin of symptoms would not have been otherwise recognized. The test may be considered to be of diagnostic value in patients with upper abdominal pain when clinical and radiologic investigations have revealed no abnormalities. The test may also delineate in which organ symptoms originate when more than one organ is involved.

Summary and Conclusions

The acid perfusion test for esophagitis has been used to demonstrate the esophageal origin of clinical symptoms limited to the upper abdomen. In 10 of 20 patients with abdominal pain, cause undetermined (no gastrointestinal x-ray abnormalities), it was demonstrated by positive test responses that the cause was esophagitis. Endoscopy was confirmatory in most instances. Negative test responses generally excluded the esophagus as the cause of symptoms and let the cause of abdominal pain remain undetermined.

The histories of patients with abdominal pain due to esophagitis were summarized and found to be not significantly different from those of patients with ulcer disease. The presence of either gallbladder or ulcer disease demonstrable on x-ray examination did not, per se, give a positive response to the esophagitis test.

In 4 of 13 patients with x-ray evidence of gallbladder or duodenal ulcer disease, abdominal symptoms originated in the radiologically normal appearing esophagus rather than in the organ where x-ray abnormalities were found.

There is justification for simplifying and shortening the test for esophagitis to make it more practical for clinical use. The test is of clinical value, but its points of fallibility should be understood by those who use it.

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CLINICAL NOTES

RADIOLOGIC SIGN IN HEMOSIDEROSIS

Edward Shanbrom, M.D.
and
Norman Zheutlin, M.D., Duarte, Calif.

Approximately 80 cases of exogenous hemosiderosis have been reported in the literature since 1948. This entity has been termed by various observers as iron overload, transfusional hemosiderosis, and secondary hemochromatosis.[1] In a review of the literature on hemochromatosis and hemosiderosis we found few references to the x-ray findings in these conditions. Increased liver density, found by use of x-rays, has been reported in cases of hemochromatosis.[2] Increased density of the spleen, however, has not been referred to previously. The occurrence of iron and calcium deposits in the spleen in patients with sickle cell anemia has previously been described.[3]

In idiopathic hemosiderosis, the iron is stored predominantly in the liver; in exogenous hemochromatosis, a greater amount of iron appears to be concentrated in the spleen.[4] We were therefore not surprised that in some patients with transfusional hemosiderosis an increased density of the spleen could be seen on a routine film of the abdomen or incidentally noted on a routine chest survey.

The changes produced on an x-ray film are secondary to the radiation changes that occur when the radiant energy passes through the medium being irradiated, with consequent loss of energy. The degree of penetration of roentgen rays through the anatomic structures of living organisms determines the photographic effect. The penetration is dependent in part on the atomic number of the penetrated substance. The higher the atomic number, the greater the absorption coefficient with x-rays used in conventional diagnostic roentgenography and the smaller the penetration. It then follows that any element with a high atomic number, when deposited in the tissues, will produce recognizable x-ray differences. It is the purpose

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of this paper to present four cases of transfusional hemosiderosis in which the patients showed an increased density of the spleen.

Report of Cases

CASE 1.—A 42-year-old male had the diagnosis of subacute lymphocytic leukemia established in February, 1956. He had a profound anemia and required frequent transfusions. He had been unsuccessfully treated with radiotherapy over the spleen, a prolonged course of chlorambucil therapy, and massive doses of steroids. His white blood cell count ranged around 100,000 per cubic millimeter or higher; most of the cells appeared to be fairly mature. In the first six months after the diagnosis of leukemia the patient was transfused with approximately 50 pt. (23,658.5 cc.) of blood. Bone-marrow aspiration showed almost complete replacement of the normal marrow by mature and immature lymphoid cells. About 10 months after he had begun to receive frequent blood transfusions, it was noticed that he had diffuse tanning of the skin, somewhat more intense over the face and hands. A plain x-ray film of the abdomen (fig. 1) showed increased density of the spleen. He died 13 months

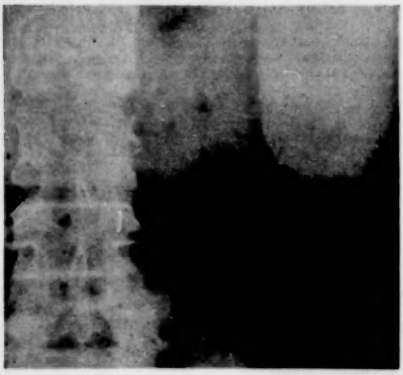

Fig. 1 (case 1).—Roentgenogram of abdomen showing enlarged dense spleen in left upper quadrant.

after the onset of his disease. At autopsy the spleen was found to be markedly enlarged. The cut surface of the spleen gave a strongly positive reaction with Perls' stain for iron.[5]

CASE 2.—This 63-year-old female had chronic lymphocytic leukemia for nine years, which was fairly successfully controlled with periodic x-ray therapy. About one year prior to admission to the City of Hope Medical Center she developed a moderate anemia, requiring 1 or 2 pt. (473.2-946.3 cc.) of blood every month. Coombs' test was negative, and there were no cold agglutinins demonstrated in her serum. About six weeks prior to her death the patient developed an intense jaundice, although she had had mild icterus for several months previously. X-ray studies revealed gallstones and an unusually dense spleen shadow (fig. 2). In June, 1957, a cholecystectomy was performed, but there was no evidence of common duct obstruction. At surgery the liver was found to be markedly sclerotic. After surgery the patient did poorly and ran a downhill course. She became deeply jaundiced, lapsed into a coma, and died one week after surgery. At autopsy the spleen was markedly enlarged, and its cut surface was strongly positive for hemosiderin.

CASE 3.—A 23-year-old Negro male was admitted to the University of California Medical Center in Los Angeles because of a sickle cell crisis. Although he had received many blood transfusions throughout his life, the exact number was not known. A routine chest x-ray revealed a dense spleen. The patient is still living.

Fig. 2 (case 2).—Roentgenogram showing unusually dense spleen. Scattered densities represent opaque medium in the colon.

CASE 4.—A 61-year-old male was seen at the University of California Medical Center outpatient department because of weakness, which had been present for five weeks. Two years previously he had received 26 pt. (12,302.4 cc.) of blood for a bleeding duodenal ulcer. A subtotal gastrectomy was performed. Four months later he developed

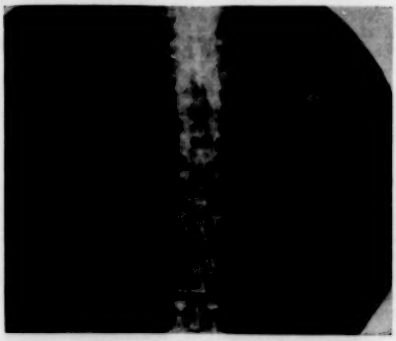

Fig. 3 (case 4).—Roentgenogram of abdomen taken at time of intravenous urogram, showing moderately enlarged and dense spleen.

homologous serum jaundice. Five weeks prior to his visit to the University of California Medical Center, he had had an episode of hematemesis, requiring transfusion with 6 pt. (2,839 cc.) of blood. There was no history of alcoholic ingestion. Physical examination revealed spider telangiectasia

over the face and trunk and moderate enlargement of the liver and spleen. X-ray films made for intravenous urogram revealed an enlarged and dense spleen (fig. 3).

Summary

Four patients with transfusional hemosiderosis demonstrated an increased density of the spleen as visualized by roentgenograms. This change is secondary to increased deposition of iron in the spleen as established by autopsy findings in two of the patients.

Dr. B. J. O'Laughlin, associate professor of radiology, kindly provided the x-ray films of case 3.

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AMMONIA INTOXICATION IN A PATIENT WITH CIRRHOSIS TREATED WITH CHLOROTHIAZIDE

George J. Magid, M.D., Seymour H. Levitt, M.D., Harold A. Harper, Ph.D.
and
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Chlorothiazide is a new orally given diuretic compound recently synthesized and shown to be a carbonic anhydrase inhibitor in vitro 1/25 as potent as acetazolamide.[1] Upon comparing the structural formulas of the two compounds (fig. 1), it may be seen that they possess the SO_2NH_2 grouping in common and are thus both representative of that group of heterocyclic sulfonamides which has previously been shown to exert inhibition of carbonic anhydrase activity.[2] Experimental and clinical studies on the mechanism of the diuretic action of chlorothiazide have indicated that the effect of the drug is predominantly saluretic (leading to an increase in sodium and chloride excretion) and, to a lesser extent, kaluretic (leading to an increase in potassium excretion) and that it has minor but definite carbonic anhydrase-inhibiting effects.[1] Chlorothiazide has been described as the most potent orally given diuretic now available, having an approximate potency relationship of 0.8 to intramuscularly given meralluride.[3] It has shown little tendency to induce refractoriness upon repeated administration, an undesirable feature of the carbonic anhydrase inhibitors and of the amino uracils.[3] Other investigators [4] have described the effectiveness of chlorothiazide in various disease states associated with edema and pointed out that it causes little or no toxicity or serious changes in electrolyte concentrations in the serum.

Other reports [5] on the therapeutic use of chlorothiazide in edematous cirrhotic patients have called attention to the occurrence of drowsiness, tremor, confusion, and electroencephalographic changes, all signs of impending hepatic coma. In one patient these manifestations were associated with elevated blood ammonia concentrations.[5a]

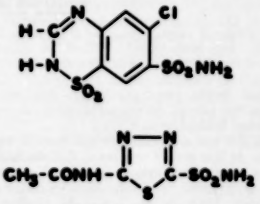

Fig. 1.—Structural formulas of chlorothiazide (*above*) and acetazolamide (*below*).

The present report describes the clinical course in a patient with cirrhosis treated with chlorothiazide in whom the blood ammonia concentration was first found to be elevated after six days of treatment. A more detailed study was then undertaken to determine the effect of chlorothiazide on

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the blood ammonia concentration in this patient; parallel determinations of the serum and urine electrolyte concentrations were also performed.

Report of a Case

A 39-year-old woman (a patient of Dr. H. C. Moffitt, Jr.) was admitted to the University of California Hospital on Dec. 26, 1957, with the complaint of swelling of the legs for 14 years and shortness of breath for 7 years. According to her history, the patient had probably had an attack of hepatitis with jaundice 18 years previously. Fourteen years previously, shortly after recovery from a salpingo-oophorectomy for ectopic pregnancy, she had developed painless swelling of the legs and thighs which had continued to the present. Intermittently, she had also noted, in the mornings, puffiness of face and hands which had become progressively worse and finally, during the past year, incapacitating. The history did not reveal excessive use of alcohol or exposure to hepatotoxins. Seven years previously, after an attack of pneumonia, the patient developed dyspnea on exertion and noted that she bruised easily.

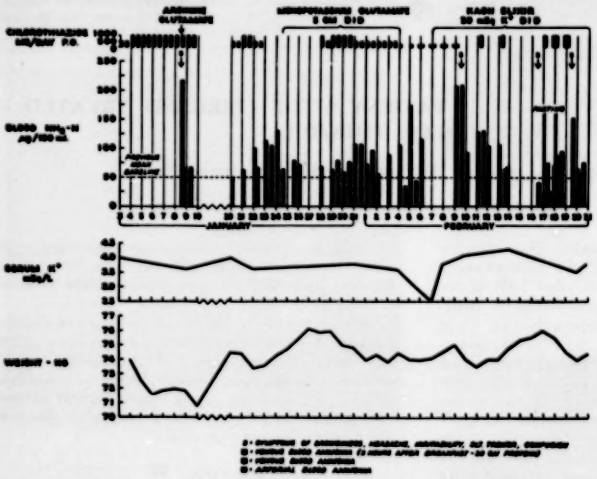

Fig. 2.—Effect of varying doses of chlorothiazide on blood ammonia levels, serum potassium levels, and body weight. Effects of concomitant administration of arginine and monopotassium glutamate and of potassium alone are also shown.

In 1954, she was readmitted to this hospital for the same complaints. At that time it was noted that she had distended neck veins, a soft apical systolic murmur, hepatosplenomegaly, thrombocytopenia, and laboratory evidence of hepatocellular injury. Three months before the present admission, the patient again entered the hospital with the same complaints. Diagnostic studies for constrictive pericarditis were negative. Clubbing (of the fingers and toes) was first described at this time, as was cyanosis.

At the time of the patient's discharge from the hospital, 250 mg. of acetazolamide daily was prescribed. She returned within two weeks with signs and symptoms of impending hepatic coma. The blood ammonia concentration was found to be elevated to 138 mcg. per 100 ml. Administration of 20 Gm. of arginine intravenously in 500 ml. of 5% dextrose and water and a low-protein diet were followed by rapid improvement and a lessening of symptoms. The blood ammonia concentration decreased, averaging 46 mcg. per 100 ml. daily on the subsequent three days.

Physical Examination.—The patient was a well-developed, well-nourished woman with 3+ edema of the lower extremities, extending up to the thighs. Blood pressure, pulse, and temperature were normal. A few spider nevi on the chest and slight cyanosis of the tongue and mucous membranes were also noted. Distension of the neck veins was noticeable when the patient was in the upright position but disappeared when she was positioned at 45 degrees. A grade 1 systolic murmur, heard at the apex and at the lower left sternal border, and a normal sinus rhythm were present. The liver edge was palpable three fingerbreadths below the xiphoid process. The spleen could be felt three fingerbreadths below the left costal margin on deep inspiration. The fingers and toes were clubbed. Heart catheterization showed portal hypertension, consistent with the diagnosis of cirrhosis, but no evidence of a block in the hepatic or the caval veins. Because the prothrombin time was abnormal (60%), liver biopsy was not attempted.

Laboratory Data.—Results of a urinalysis on admission were normal. The red blood cells appeared slightly hypochromic; the hematocrit value was 34%. A normal white blood cell count and differential count were reported. The serum protein level was 6.4 Gm. per 100 ml., serum albumin level 2.8 Gm. per 100 ml., and serum globulin level 3.6 Gm. per 100 ml. Paper electrophoresis of the serum proteins revealed a decrease in the albumin fraction and a slight increase in the gamma globulin fraction. Results of other tests were as follows: cephalin flocculation, 3+ in 48 hours; thymol turbidity, 9 units; serum alkaline phosphatase level, 18 units (according to the method of Shinowara, Jones, and Reinhart); sulfobromophthalein retention, 16% in 60 minutes; serum cholesterol level, 318 mg. per 100 ml.; free cholesterol, 230 mg. per 100 ml.; esters, 88 mg. per 100 ml. Serum bilirubin concentration was 1.1 mg. per 100 ml. indirect and 0.4 mg. per 100 ml. direct. The serum sodium and chloride concentrations were normal; the concentration of serum bicarbonate remained at the upper limit of normal throughout the patient's hospital stay. A low serum potassium concentration was noted on one occasion (fig. 2).

A percutaneous splenoportogram was obtained by intrasplenic injection of 30 ml. of 50% diatrizoate (Hypaque) sodium. Serial x-rays revealed dilatation and tortuosity of the collateral circulation of the portal system consistent with intrahepatic obstruction secondary to portal cirrhosis.

Hospital Course.—Chlorothiazide therapy was initiated because of resistance to previously administered diuretics and the occurrence of ammonia intoxication after treatment with acetazolamide. The patient was given a measured diet, which included 11 mEq. of sodium, 90 mEq. of potassium, and 35 Gm. of protein daily, 20 Gm. of which was taken at breakfast. After a two-day control period, 1,000 mg. of chlorothiazide was administered every 12 hours for six days. Use of the drug resulted in immediate saluresis and lesser kaluresis, both of which decreased daily.

On the sixth day the patient complained of headache and showed signs of sleepiness. She also developed a coarse tremor and a slight flapping motion of the hands. The concentration of ammonia (determined by the method of Conway[4]) in specimens of peripheral venous blood taken three hours after breakfast, which was also three hours after the last dose of chlorothiazide, was 214 mcg. per 100 ml. (The ammonia concentration of several blood specimens was unusually high, apparently due to use of a brand of heparin different from that usually used in this laboratory to rinse syringes. Tests on samples from several vials of heparin showed that the preparation usually used contained approximately 233 mcg. of ammonia per 100 ml. as compared to about 5,560 mcg. in the second preparation. The erroneously high values have been omitted from this report.) The electrolyte concentration of serum determined at the same time was within normal limits. Administration of chlorothiazide was discontinued, and an infusion of arginine glutamate, 20 Gm. in 500 ml. of 5% glucose solution, was given. Four hours later the blood ammonia level was 65 mcg. per 100 ml. The cerebral symptoms cleared rapidly; three hours after breakfast the next morning the blood ammonia level measured 68 mcg. per 100 ml., and the patient felt entirely well. The edema, however, gradually increased.

Ten days after the first episode of ammonia intoxication, the concentration of ammonia in the venous blood was 46 mcg. per 100 ml. Administration of chlorothiazide (500 mg. twice a day) was then resumed; the effect of the drug was checked by daily determinations of the peripheral venous blood ammonia level. During the next five days the blood ammonia level gradually increased to 135 mcg. per 100 ml. (fig. 2). Blood samples taken three hours after a standard protein breakfast each day always showed a higher concentration of ammonia than samples obtained in the afternoon.

Chlorothiazide therapy was discontinued, and a total of 10 Gm. of monopotassium glutamate was given by mouth at intervals throughout the day. The blood ammonia concentration, as determined about three hours after breakfast each day, remained at about 75 mcg. per 100 ml. From Jan. 28 to Feb. 4, chlorothiazide and monopotassium glutamate were administered concomitantly; during this period the concentration of ammonia in both morning and afternoon samples of blood was less than 105 mcg. per 100 ml. (fig. 2). The patient lost 1.7 kg. (3.7 lb.) of weight during these nine days.

At the end of this period administration of monopotassium glutamate was stopped; two days later the concentration of ammonia in the afternoon blood samples had increased to 112 mcg. per 100 ml. Use of chlorothiazide was discontinued immediately, but the blood ammonia level was still elevated (129 mcg. per 100 mg.) when measured two days after the last dose. From Feb. 7 to 21 the patient was given 20 mEq. of potassium (as potassium gluconate) twice daily and occasional experimental doses of chlorothiazide, which invariably caused a rise in blood ammonia concentration (fig. 2).

The significant observations, shown graphically in figure 2, can be summarized as follows: 1. An increase in the concentration of ammonia in the peripheral venous blood ammonia inevitably followed the daily administration of chlorothiazide, although generally the rise did not occur before the second or third day of therapy. 2. The amount of drug administered did not correlate with the rapidity or the extent of the increase in the blood ammonia concentration. 3. Cerebral symptoms became manifest whenever the venous blood ammonia level exceeded 150 mcg. per 100 ml., although on one occasion the patient ccomplained of such symptoms when the ammonia concentration was found to be normal. 4. When monopotassium glutamate was given orally, together with chlorothiazide, the rise in the blood ammonia level was less than that observed when chlorothiazide was given alone, and the cerebral symptoms were absent. 5. Cerebral symptoms did not change on potassium supplementation. These symptoms persisted during periods when the serum potassium concentration was normal, although on one occasion when the serum potassium level dropped to 2.5 mEq. per liter they were absent. 6. Arterial and venous blood ammonia concentrations were measured simultaneously on two occasions during administration of chlorothiazide. No significant difference was found. 7. The administration of chlorothiazide was uniformly effective in producing diuresis and saluresis.

Comment

The association of an increase in the concentration of ammonia in the blood with the symptoms of impending or actual hepatic coma has been established in a number of studies.[7] Such increases are thought to be directly related to the genesis of the cerebral symptoms in hepatic coma, although the concentration of ammonia in the venous blood does not always correlate well with the severity of the symptoms.[8]

Dietary protein is the major source of the ammonia produced within the intestinal tract. This has been demonstrated in animals,[9] and it is consistent with reports of the effects in man of the use of broad-spectrum antibiotics which, by decreasing the concentration of micro-organisms in the gastrointestinal tract, effects a reduction of the concentration of ammonia in the blood.[10]

The ammonia produced within the intestine is carried by the portal circulation to the liver, where it is normally detoxified as a consequence of its utilization in the formation of urea. Most of the urea is then excreted by the kidney, although a small portion enters the gastrointestinal tract via the bile; thus, urea also contributes to formation of ammonia within the intestine. In the presence of hepatic parenchymal damage or portacaval collateral circulation, the ammonia of the portal blood may escape into the systemic circulation.

However, ammonia is not entirely derived from the gastrointestinal tract; its production by the kidney has also been demonstrated. In the kidney ammonia is formed from amino acids, of which glutamine is the most important,[11] and the renal enzyme, glutaminase, specifically catalyzes this latter reaction.[12] Increases in the activity of this enzyme have been correlated with increased production of ammonia by the kidney in metabolic acidosis, and the reverse has been shown to be true in metabolic alkalosis.[12]

A third source of ammonia within the body may be the result of deamination reactions within the tissues. Under ordinary circumstances this source is considered to contribute only negligible amounts to the total blood ammonia. In fact, when the ammonia in the arterial blood is increased, the arteriovenous difference actually becomes greater,[8] suggesting an increase in ammonia uptake by the tissues as the arterial blood ammonia level rises. The muscle mass removes approximately 40% of the ammonia that reaches it, whereas the brain re-

moves only about 20%. Several authors have suggested that the arterial blood ammonia levels correlate better with the degree of hepatic coma than do the venous levels.[13]

Inasmuch as an increase in ammonia has also been reported to follow the administration of acetazolamide,[7a] a compound structurally and pharmacologically related to chlorothiazide, the mechanisms suggested to explain the elevation of ammonia by acetazolamide may be mentioned briefly. The fact that the venous blood shows a higher concentration of ammonia than the arterial blood after administration of acetazolamide points to an impairment of the uptake of ammonia by peripheral tissues.[8] Dawson's report [7a] that the concentration of the ammonia in the jugular venous blood was increased one hour after oral administration of acetazolamide suggests a direct effect on brain metabolism and consequent interference with uptake of ammonia in the brain. In this study no increase in the concentration of ammonia in the hepatic venous or arterial blood after administration of acetazolamide was found. This was interpreted as evidence that the drug does not affect the metabolism of ammonia in the liver.

The kidney might also be responsible for the increase in blood ammonia which follows long-term administration of acetazolamide, because of the occurrence of a metabolic acidosis. However, the effect of a carbonic anhydrase inhibitor is to reduce the availability of hydrogen ions for tubular secretion; thus, there would seem to be no stimuli for ammonia production in the renal tubule cell under these circumstances. Indeed, no significant change in the concentration of ammonia in renal venous blood was detected when measured one hour after the oral administration of 250 mg. of acetazolamide.[7a] Since acetazolamide is excreted unchanged, the increase in blood ammonia which it produces cannot be ascribed to nitrogenous products derived from its degradation.

The findings in the present case, as well as those in the reports cited above, indicate that chlorothiazide may cause an increase in blood ammonia followed by hepatic coma in cirrhotic patients. A direct effect of chlorothiazide on the brain is not likely since it does not readily enter the cerebrospinal fluid. Although the mechanisms by which the blood ammonia level rises have not been elucidated by the present study, some negative conclusions may be stated. Chlorothiazide itself is not the source, inasmuch as the compound is excreted unchanged.

The kidney is probably not one of the sources inasmuch as there is no significant fall in the serum pH with chlorothiazide administration, which would act as a stimulus to ammonia production. In addition, the urine in the present case was acid throughout.

The fact that both acetazolamide and chlorothiazide inhibit carbonic anhydrase activity to some degree suggests a common mechanism for their effect on ammonia metabolism. On the basis of this assumption, monopotassium glutamate was given to the patient in an effort to enhance peripheral utilization of ammonia.[14] The potassium salt of glutamic acid was selected, both to avoid sodium administration in an edematous patient and to provide a supplementary source of potassium, which may be decreased in the serum of patients treated with chlorothiazide.[15]

Although monopotassium glutamate was not overly effective in controlling the rise in the blood ammonia level in our patient, the concomitant administration of this compound and chlorothiazide to patients with cirrhosis may prove valuable in preventing ammonia intoxication as well as potassium deficiency. If symptoms of hepatic coma appear during the course of treatment with the two agents, withdrawal of chlorothiazide is indicated. The safe use of either acetazolamide or chlorothiazide in patients with cirrhosis apparently requires supplementation with potassium glutamate given orally, a low-protein diet, and possibly the addition of one of the broad-spectrum antibiotics to the regimen as prophylactic adjuncts against ammonia intoxication.[16]

Summary

Chlorothiazide is an effective orally given diuretic compound which structurally resembles acetazolamide. Both drugs belong to the group of heterocyclic sulfonamides which are inhibitors of carbonic anhydrase activity. In the present study administration of chlorothiazide to a patient with cirrhosis was followed by an elevation in the concentration of ammonia in the peripheral venous blood and the symptoms of impending hepatic coma. The rise in the venous blood ammonia level was significantly reduced when monopotassium glutamate was given in conjunction with chlorothiazide. Potassium supplementation other than as the glutamate during administration of chlorothiazide did not prevent the rise in venous blood ammonia level.

Several factors are involved in the increase of blood ammonia level in liver disease and its relationship to acetazolamide administration. The precise mechanism by which the blood ammonia concentration is increased during administration of chlorothiazide remains to be elucidated. The hazard of the increased blood ammonia concentrations which may follow chlorothiazide therapy must be considered when this drug is used for the treatment of cirrhotic patients. The prophylactic measures recommended consist of therapy with orally given potassium glutamate, a limited protein intake, and the administration of antibiotics.

This study was supported in part by a grant from the National Institute of Arthritis and Metabolic Diseases.

The chlorothiazide used in this study was supplied as Diuril by Merck Sharp & Dohme, Inc., Philadelphia.

The potassium gluconate used in this study was supplied as Kaon Elixir by the Warren-Teed Products Company, Columbus, Ohio.

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PHANTOM LIMB.—All amputees have phantom sensation following amputation. . . . Children before the age of six or seven do not have phantom pain following amputation. After this age, they may develop phantom pain. Because of this phenomenon in children it has been deduced that the body image of self or the "corporal schema" is not developed until age six or seven years. The usual experience of an amputee is that he has phantom sensation which may be very vivid several weeks after amputation. These sensations gradually fade over a period of one to two years. Most amputees can recall their phantom limb at will for the rest of their lives. Some patients may go for periods of 10 to 15 years and then have a bout of phantom sensation and pain which may last for days or weeks. This latter type of phantom pain is generally from an irritation in the stump. . . . If the cause of irritation is of a permanent nature, little or no relief occurs until the correct treatment is applied. If it is of temporary nature, the phantoms will generally disappear. . . . The most common local source of trouble is the painful neuroma. Less common is the ill-fitting prosthesis and anoxia of the stump which in turn causes chronic irritation. If the cause is found and the proper relief provided patients with severe phantoms still may experience their phantom pain for a considerable period afterward. The longer the patient has had phantom pain, the longer the recovery period will be after the cause has been removed. Due to the firmly established habit pattern, even after the cause of the abnormal bombardment of stimuli to the nerve is removed, the mechanism for phantom pain through the nerve pathway remains. The only hope for a patient with severe phantom pain is to remove the causative factor and anticipate that with time the conditioned habit pattern of the pain will gradually fade.—Capt. T. J. Canty, M.C., U. S. Navy, and E. E. Bleck, M.D., Amputation Stump Pain, *United States Armed Forces Medical Journal*, May, 1958.

SOFT DRINK BOTTLE IN PERITONEAL CAVITY

REPORT OF A CASE

Randolph H. Hoge, M.D., Richmond, Va.
and
Charles G. Thedieck, M.D., Bluefield, W. Va.

Occasionally a single case is so unusual that publishing it seems justifiable. We feel that this is true of the following case, which is also to be referred to briefly in another paper.[1]

A 35-year-old woman was admitted to St. Philip Hospital on June 7, 1957, complaining of pain in the lower part of the abdomen. According to the history given by her she had been beaten up by her "boyfriend," whom she thought used a piece of pipe, knocking her into semiconsciousness. She thought also that she had been struck in the vagina, because after the attack there was vaginal soreness and bleeding. She further stated that she had been kept a prisoner in her friend's quarters for three days and that he and some relatives had made an attempt to extract something from the vagina.

Roentgenogram showing soft drink bottle in peritoneal cavity.

Two weeks after the attack she was brought to the hospital with a fever, vomiting, a distended, painful abdomen, and the absence of bowel sounds. Pelvic examination showed a profuse bloody discharge in the vagina and a laceration in the posterior vaginal fornix. The cul-de-sac bulged but was not fluctuant. The cervix appeared normal. Due to pain and abdominal distention, the corpus and adnexa could not be outlined.

Her temperature fluctuated between 100 and 105 F (37.8 to 40.5 C). The hemoglobin level was 12 Gm. %; the white blood cell count was 22,800 per cubic millimeter, with 88% polymorphonuclear leukocytes, 11% lymphocytes, and 1% eosinophils. The blood chemistry was as follows: serum sodium level, 140 mEq. per liter; serum calcium level, 5 mEq.; serum chloride level, 99 mEq.; and carbon dioxide-combining power, less than 7 mg. %.

On June 10, the patient was given a fluoroscopic examination to aid in the passage of a Devine tube. To the surprise of the examiner, the fluoroscopic examination showed "a density resembling a soft drink bottle." He reported that "no definite gas was seen surrounding the bottle to suggest that it was located within the lumen of the intestine, and it was thought to lie free in the peritoneal cavity." There was no free air under the diaphragm, and a single air fluid level was seen in what appeared to be the stomach. Several loops of small intestine were slightly distended, and moderate gas was seen throughout the colon (see figure). Close inspection of the bottle on one film showed the lettering on the bottle.

The patient was given a blood transfusion, and a laparotomy was performed the same day that the x-ray findings were made. A 12-oz. bottle was found in the peritoneal cavity and was surrounded by an abscess filled with a large quantity of pus. The wall of the abscess was formed by adherent loops of intestine. There were adhesions in the pelvis; otherwise the pelvic organs appeared normal, and the site of entry of the foreign body was not determined from above.

Culture of pus from the abdominal cavity grew alpha streptococci and Escherichia coli. The infection responded well to chloramphenicol (Chloromycetin), penicillin, and streptomycin therapy, though the immediate postoperative course was stormy. A wound breakdown required resuture. On June 30, 23 days after admission, the patient was discharged from the hospital in good condition. The "boyfriend" was tried, convicted, and sentenced to a penal institution for four years.

Comment

The above case is one in which a large soft drink bottle was introduced into the peritoneal cavity, via the vagina, and remained there unknown to the patient for over two weeks. In these respects the case may be unique.

1200 E. Broad St. (19) (Dr. Hoge).

From the Division of Gynecology, Medical College of Virginia, Richmond.

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COUNCIL ON DRUGS

SYMPOSIUM-PANEL DISCUSSION ON THE USE AND ABUSE OF ADRENAL STEROIDS

An A. M. A. symposium and panel discussion on the captioned subject, sponsored by the Council, will be presented at the Lisner Auditorium of the George Washington University School of Medicine, 21st and H Streets, N.W., Washington, D. C., September 25, 1958. The meeting, which is being held in cooperation with the University and the Medical Society of the District of Columbia, is open to all physicians, including graduate and undergraduate students of medicine. Registration will be optional and free of charge. The program, which follows, has been arranged by authorization of the Council. H. D. KAUTZ, M.D., *Secretary.*

1:15 p. m.: Welcome
DR. JOHN PARKS, Dean, George Washington University School of Medicine
DR. JAMES W. WATTS, President, the Medical Society of the District of Columbia and Professor of Neurological Surgery, George Washington University School of Medicine
DR. HUGH H. HUSSEY JR., Member, A. M. A. Board of Trustees and Dean, Georgetown University School of Medicine

1:30 p. m.: Opening Remarks by the Chairman-Moderator
DR. THOMAS McP. BROWN, Member, A. M. A. Council on Drugs, Executive Officer of the Department and Eugene Meyer Professor of Medicine, George Washington University School of Medicine

1:45 p. m.: *Steroid Therapy in Endocrine Disorders*
DR. JOHN E. HOWARD, Associate Professor of Medicine, Johns Hopkins University School of Medicine

2:05 p. m.: *Steroid Therapy in Rheumatoid Diseases*
DR. L. MAXWELL LOCKIE, Professor and Head of the Division of Therapeutics, University of Buffalo School of Medicine

2:25 p. m.: *Steroid Therapy in Systemic Infections*
DR. MONROE J. ROMANSKY, Professor of Medicine, George Washington University School of Medicine

2:45 p. m.: *Steroid Therapy in Skin Disorders*
DR. RICHARD B. STOUGHTON, Director of Dermatology, Western Reserve University School of Medicine

3:05 p. m.: *Steroid Therapy in Surgical Patients*
DR. WARREN H. COLE, Professor of Surgery and Head of the Department, University of Illinois College of Medicine

3:25 p. m.: *Steroid Therapy in Ophthalmic Lesions*
DR. IRVING H. LEOPOLD, Professor and Head of the Department of Ophthalmology, University of Pennsylvania, Graduate School of Medicine

3:45 p. m.: Intermission (15 minutes)

4:00 p. m.: *Panel Discussion of Adrenal Steroid Therapy*
Moderator: DR. BROWN
Panelists: DRS. HOWARD, LOCKIE, ROMANSKY, STOUGHTON, COLE, and LEOPOLD

The panel will open the preceding presentations to general discussion and will consider questions from the audience.

CHEMICAL LABORATORY

The Chemical Laboratory has authorized publication of the following statement.
WALTER WOLMAN, PH.D., *Director.*

Monographs of tests and assays for new and nonofficial drugs adopted by the Chemical Laboratory of the American Medical Association represent an expression of opinion as to what might constitute adequate tests and assays to serve as a reference guide to those interested in the identity and quality of a new and nonofficial drug.

Completed monographs are published in the journal *Drug Standards* for those interested in the details of the procedures. Monographs on the following drugs have appeared in the March-April, 1958, issue of that journal, except for the monograph on fludrocortisone acetate which appeared in the January-February, 1958, issue. The cooperation of the listed pharmaceutical firms that furnished samples and data is acknowledged.

Acetazolamide.....(Lederle Laboratories)
Acetazolamide sodium.....(Lederle Laboratories)
Carbazochrome salicylate.....(The S. E. Massengill Co.)
Fludrocortisone acetate.....(Merck Sharp & Dohme)
(E. R. Squibb & Sons)
(The Upjohn Company)
Hydroxystilbamidine isethionate..(The Wm. S. Merrell Co.)
Mecamylamine hydrochloride.....(Merck Sharp & Dohme)
Methyprylon.....(Hoffmann-La Roche, Inc.)

COUNCIL ON FOODS AND NUTRITION

Report to the Council

The Council has authorized publication of the following report. This article is part of a nutrition education program which is assisted by the Nutrition Foundation, Inc.

PHILIP L. WHITE, SC.D., *Secretary.*

NUTRITIONAL MANAGEMENT OF CHILDREN WITH DIABETES MELLITUS

Robert L. Jackson, M.D., Columbia, Mo.

Diabetes mellitus in children and young adults during the preinsulin era was a severe and rapidly progressive disease. After the discovery and introduction of insulin in 1922, it became possible to keep the diabetic child alive. As additional information concerning the disease accumulated, better methods of treatment were evolved. Advances in the field of nutrition, refinements in the handling of acute complications such as acidosis and coma, introduction of refined and prolonged-acting insulin preparations, and the discovery of potent antibacterial agents which combat intercurrent infections are important factors that have made it possible to improve the health status and increase the life expectancy of the juvenile patient with diabetes mellitus.

The insulin-sensitive type of diabetes in children is so different from diabetes in the middle-aged or elderly patient that it requires special consideration. The majority of children and young adult patients are undernourished when the disease is first discovered, and the onset of the disease is relatively sudden. The majority of the older patients are obese when the disease is first discovered, and the onset is frequently insidious. The disease in the child is more severe than the disease in the adult. The nutritional requirements of the child are relatively greater and gradually changing. Infections are more frequent and more severe. Physical activity is much more erratic, and the emotional pattern is less predictable, especially during adolescence. From the standpoint of practical therapeutics, it is safer to consider diabetes of the young as distinct from diabetes of the middle-aged or elderly patient. The difficulties encountered in the over-all management of the child with diabetes are so numerous that expert care is desirable.

As the survival period of juvenile diabetics has gradually lengthened, degenerative vascular changes have been observed with increasing frequency. A high percentage of young adults who have been diabetics since childhood find themselves severely handicapped by crippling vascular disease. Although great progress has been made in the treatment of childhood diabetes, most methods used in the past have failed to prevent the development of diabetic retinopathy 10 to 15 years after the onset of the disease.[1] The only identifiable factor which has been found to have a constant significant relationship to the incidence and severity of the vascular complication is the degree of control of the disease.

From the Department of Pediatrics, School of Medicine, University of Missouri.

Diet for Growth and Maintenance

Dietary management is of major importance in the treatment of children with diabetes, as the nature and severity of the disease are such that insulin therapy is required. There has been a gradual transition in types of diets prescribed for children with diabetes. At present, there is almost universal agreement that the maintenance diet of the child with diabetes should be essentially the same as for normal children and that it is important that the food habits of the child's family and schoolmates be considered in planning the diet.[2] Controversy exists regarding the necessity for close supervision of the intake of food.

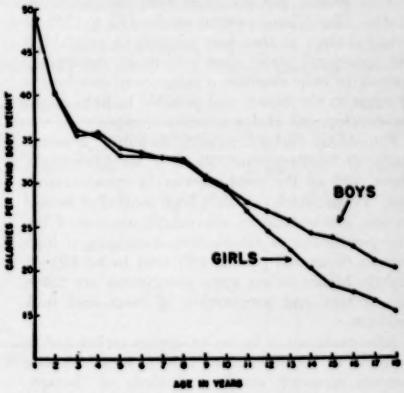
Most authorities believe there is a close relationship between control of the diabetes and the development of complications, both short-term and long-term. Consequently, they advocate that the food intake and insulin distribution be adjusted so as to avoid insulin reactions and, insofar as practicable, to avoid glycosuria. However, the difficulties encountered in treating diabetes in the child are so numerous that others believe it is undesirable to adjust the insulin dosage and food intake to closely control the glycosuria. They believe that these restrictions are undesirable for the emotional health of the child and that moderate glycosuria will lessen the dangers of insulin reaction. Members of this group advocate a so-called free diet and

sufficient insulin to control polyuria and gross glycosuria and to avoid ketonuria at all times. The introduction of the term "free diet" has resulted in considerable confusion, since the term is interpreted differently. The free diet usually is supervised to the extent of instructing the parents and the child regarding an adequate and regular intake of food, with avoidance of excessive use of unessential foods. Our present state of knowledge makes it not only possible but practical to maintain a high degree of control in children living in well-adjusted homes. Each patient finally makes a compromise between that which is attainable and that which his environment will allow. With a noncooperative and indifferent family, evidence indicates that a greater compromise must be made to the patient's ultimate disadvantage.

Diabetic children have a rather uniform pattern of recovery once treatment of the disease is initiated. Prior to insulin therapy, the child with diabetes has depleted his nutritional stores; thus, during the initial phases of management, he is rebuilding body tissues and stores to normal. During this time his requirements for calories and other essential nutrients are higher than the predicted requirements for well children. At the beginning of treatment, it is desirable to provide approximately 1.5 Gm. of protein and 35 to 40 calories per pound of theoretical body weight. The caloric intake is adjusted subsequently, according to the appetite and weight response of the patient. Vitamin supplementation is indicated during the initial period of treatment. Deficiencies of thiamine, riboflavin, and niacin can occur in diabetic acidosis. Supplementation of the diet with three to five times the recommended daily allowance of these vitamins for the first week or so of postacidotic treatment would seem to be indicated in order to replenish the nutritional stores. After this initial period, the only vitamin supplement needed is the same as for normal children receiving a good diet, namely, 400 units of vitamin D daily.

The recommended dietary allowances of the National Research Council are the best guides for providing for the nutritional requirements.[3] In 1942, Jackson and Kenefick [4] found that the diet for the diabetic child could be calculated on the basis of protein and calories and that no special attention need be given to the ratio of fat to carbohydrate of individual meals.

Calories.—My associates and I recently studied the caloric intake of 71 juvenile diabetic patients who maintained a high degree of dietary control and sustained normal growth; the mean caloric intake per pound of body weight is shown in the figure.[5] When good nutritional status has been established and growth follows a fairly normal pattern, the caloric requirement can be estimated from these figures denoting mean calories per pound of body weight. However, a wide range of caloric intake may be expected at each age, as the needs of each child are variable. They depend not only on age and sex but also on body build, rate of growth, type and amount of activity, amount of rest, and emotional lability. In the figure the curves for boys and girls are almost identical through age 10. In a child from 1 to 3½ years old, the curves for caloric intake per pound of body weight decrease rapidly; they level off until the child reaches 8 years of age and then show a steady decline through adolescence. In children 10 to 18 years old, the number of calories per pound of body weight for girls decreases more rapidly than those for boys. The total caloric intake of both boys and girls up to adolescence is much the same as that recommended by the National Research Council. However, from



Mean caloric intake per pound of body weight, in relation to age, for 39 boys and 32 girls with diabetes mellitus in good control.[5]

ages 13 through 18 for girls and 16 through 18 for boys, those children receiving semiquantitative diets have somewhat lower caloric intakes than those recommended by the National Research Council. This knowledge is particularly useful in guiding the intake of adolescent girls to prevent obesity. Some of the factors involved in the usual accelerated weight gain in girls include failure to decrease insulin and caloric intake after the prepuberal growth spurt, decreased physical activity, and dietary indiscretion to attain social acceptance. If a child is either overweight or underweight, the theoretical weight for his height rather than his actual weight should be used as a guide for predicting caloric intake.

Protein.—The vital importance of adequate protein intake for children is generally accepted. The main effect of uncontrolled diabetes on protein metabolism appears to be a decreased rate of muscle-protein synthesis. In untreated, severely diabetic animals, this decrease in formation rate may be as high as 60 to 80%. Almost all juvenile, diabetic patients are labile and at times do not maintain a high degree of control of the disease. The slow release of potential carbohydrates from protein has been shown to help maintain a more even distribution of sugar in the blood. Fanconi and others report an extremely high incidence of nephropathies in a group of juvenile diabetics given a low-protein diet.[6] Consequently, for diabetic patients during early childhood and the prepubescent growth spurt, and with retarded growth, 1.5 Gm. of protein per pound of theoretical weight is advocated. For patients during midchildhood, at least 1 Gm. of protein per pound of body weight is desirable. This liberal protein intake (15 to 20% of total calories) is therefore advised to reestablish the nutritional state after periods of incomplete control, to help maintain a more even distribution of sugar in the blood, and possibly to help retard the development of degenerative changes.

Fat.—Many dietary surveys, including a recent study of children, indicate that fat contributes about 40% of the total calories in the American diet.[7] Foods which contain a high content of animal protein also contain an appreciable amount of fat. The percentage of fat in diets containing a high content of animal protein will tend to be 40% or slightly higher unless some precautions are taken in selection and preparation of meat and milk products.

Atherosclerosis is known to appear earlier and to progress at an accelerated rate in most diabetic patients receiving standard methods of therapy. Recent epidemiologic studies of different ethnic groups suggest that the percentage and type of fat in their diets may be related to the age of onset and incidence of atherosclerosis. Additional studies are needed to determine whether a lower fat intake or a higher intake of unsaturated fatty acids will help delay the appearance of atherosclerosis in nondiabetic and diabetic patients. Until we have additional knowledge, it would seem desirable that the over-all average caloric intake from fat for the diabetic not exceed 35 to 40% and that some unhydrogenated polyunsaturated vegetable oils be included in the diet. However, as previously stated, it is not necessary to provide a fixed ratio of fat to carbohydrate for individual meals.

Carbohydrate.—If 15 to 20% of the calories are provided by protein and 35 to 40% by fat, then the remaining 40 to 50% of the total calories will be derived from carbohydrates. To maintain a high degree of control, the distribution of the dietary carbohydrates throughout the day must be relatively uniform. The use of concentrated sweets should be avoided except in small quantities in seasoning other foods for regular meals.

Minerals.—Without the inclusion of milk in the diet, the nutritional requirement of the child for protein and calcium cannot be met unless special and expert supervision is given. Milk and milk products are the best sources of minerals, particularly of calcium. Calcium is the chief mineral requiring special attention during childhood, since the other essential minerals are most likely to be present in sufficient amounts in most diets. Milk should not be considered solely as a source of calcium, because it contributes most importantly to the requirements of protein as well as to other essential nutrients, such as vitamin A, riboflavin, and thiamine.

The efficiency of calcium utilization in children varies widely, but when 400 units of vitamin D are given, the range of retention is not great; however, the amount ingested always greatly exceeds the amount retained. If the child is receiving 400 units of vitamin D daily, it has been found that in the early part of the preschool period one pint of milk, in addition to the usual diet, permits an adequate retention of calcium to meet the theoretical requirement which is low at this age. Very quickly after this time and up to the time the child is approximately 10 years of age, the retention requirement is not met until the quantity of milk is increased to about one and one-half pints daily. The requirement during the prepubescent growth spurt is a quart or more daily.

Diet and Physical Activity

Physical activity and its relation to food intake is a very important aspect of diabetic management. The diabetic child may be as active as any child, and it is necessary to understand his caloric needs in this respect. During the period of regulation in the hospital, it is desirable to maintain as constant and normal a pattern of physical activity as possible. Once the insulin requirement has been established and the child returns home, it is important to keep the dosage of insulin as constant as possible from day to day and to make additions or subtractions of food with variations of exercise rather than increasing or decreasing the insulin. It is impossible to advise specific adjustments of the diet for a given child for a given period of activity or inactivity. It is necessary for the mother and the child to work out this problem by experience on a trial-and-error basis, and at each office visit this phase of management needs to be discussed and a program gradually evolved to fit the pattern of each child's life. It is preferable to give additional small amounts of food with the meals or between-meal snacks.

Although additional food for exercise is advised, ingesting excessive food outside the regular dietary pattern is definitely discouraged.

Studies by workers at Columbia University have provided some data on energy expenditure by children for specific activities.[8] These data illustrate that caloric intake might well increase several hundred calories a day to meet the needs of strenuous activity. For example, boys 12 to 14 years old require 1.0 calorie per pound per hour for quiet play, with an increase to 2.0 calories per pound per hour for cycling. The mean value of energy expenditure for the routine activities of boys 12 to 14 years old is calculated to be 1.2 calories per pound per hour. An increase of 0.9 calorie per pound per hour would bring the calories up to the reported requirement for cycling. For a 13-year-old boy weighing 90 lb. (40.9 kg.), this would add an energy expenditure of about 80 calories per hour. Five hours of work at this rate of expenditure would add approximately 400 calories to the day's needs. Therefore, the predicted mean total caloric intake for a 13-year-old boy might increase from approximately 2,600 to 3,000 calories or more on a day when physical activity was greatly increased.

Percentage Distributions of Insulin and Diet

Regimen	Type of Insulin	Daily Injections, No.	Distribution of Insulin, %*				Distribution of Calories of Total Diet, %					
			Breakfast	Dinner	Supper	Night	Breakfast 7:00	Snack 9–9:30	Dinner 12:00	Snack 3–4:30	Supper 5:30	Snack 9–9:30
A	Regular	4	35	22	28	15	33⅓		33⅓		33⅓	
B	Regular	2	35	22			[illegible]		33		33	0
	Globin zinc, lente, or isophane (NPH)	1			43							
C	Mixture of 1 part regular to 2 parts globin zinc or isophane	1	66⅔				21	12	29	6	29	0
	Globin zinc or isophane	1			33⅓							

* Regular insulin and mixtures of regular and globin zinc or isophane insulins are given approximately ½ hour before meals; globin zinc, lente, or isophane insulins are given 1 to 1½ hours before meals.

Diet and Infection

The basal diet should be reduced during infections, depending on the severity of the infection, the degree of anorexia, and the amount of curtailment of physical activity. We have found it desirable to lower the total calories by 20 to 30% primarily by decreasing the fat content of the diet. The use of more fruits with higher percentages of carbohydrate makes the diet smaller and usually more acceptable.

Diet Instruction

In order to learn the caloric content of different portions of food, the mother and the child are taught how to weigh or measure all foods in the diet. Soon they learn how to estimate quantities of foods that appear daily in the meals. We have found that the use of simple, quantitative diets is important in the beginning home care of the child in order that the parent and the child feel secure about this aspect of diabetic care while they are learning to test urine specimens, administer insulin, and adjust the dosage of insulin. It is most important in the initial instruction of the parents and the child to teach them how to use high-quality common foods in preparing simple menus. The initial menu may include only one or two substitutions from each group. Additional substitutions are made gradually at whatever rate the parent and the child desire and can understand. This type of dietary management helps to teach the parents and the child the importance of the interrelationship of food intake with the timing, amount, and type of insulin being administered. The mother soon learns how to estimate the food that appears daily in the meals. As the parent and the child gain experience and insight, they are ready to learn how to exchange foods. Recipes combining the basic foods used in the diet are then given to the parents. These will add variety to the meals and stimulate individual interest.

Diabetic diets have been devised for children in the department of pediatrics at the State University of Iowa.[9] The distribution of the food into meals was designed to approximate the usual eating habits of well-fed American children. When compared with the daily dietary allowances[3] as recommended by the National Research Council, these diets provide a more liberal allowance for protein, calcium, vitamin A, and riboflavin. This slightly higher content of essential nutrients may be desirable as it is impossible to maintain complete diabetic control at all times. The food values of the substitutions used in these diets for diabetic children are approximately the same as those in the

Exchange Food Lists prepared by the American Diabetes Association, the American Dietetic Association, and the United States Public Health Service. From the clinical viewpoint, if the proper foods are selected, the minor differences in the two systems are insignificant. By use of exchange lists, dietary patterns to meet the relatively greater and changing nutritive needs of children are being devised and tried at the University of Missouri Medical Center.

The only difference in the dietary program for the diabetic as compared with that for the nondiabetic child is that the food intake of the diabetic is adjusted according to the type and amount of insulin that has been administered as well as according to the physical activity pattern of the child. In other words, the basic diet is used as a guideline for varying the food intake from day to day. In addition, the parents must be taught how to adjust the basic diet according to the appetite and the rate of growth of the child during periods of illness. This is possible, however, only to the degree that the parents have an understanding of the disease, which depends on how well they have been instructed and their innate ability to learn. Actually, the nutrition of the entire family is usually greatly improved. From interviews with adults whose diabetic condition developed in childhood, we have learned that those patients who had established good nutritional habits as children had, with few exceptions, carried these habits into adult life.

Insulin and Diet

Most, if not all, diabetic children require two or three daily injections of insulin if hypoglycemia and glycosuria are to be controlled. In our experience it is best to decrease the number of injections gradually by using longer-acting insulin preparations according to the tolerance of the patient.

Three regimens of insulin, with appropriate dietary plans, are shown in the table. Regimen A (four injections of insulin and three meals) is used in the hospital for the early treatment of the patient to establish glycemic equilibrium. Regimen B (three injections of insulin and three meals and an evening snack) is used in the hospital after control is attained and for the initial period of home management. Regimen C (two injections of insulin and three meals and three snacks) is introduced in the outpatient clinic or office and is used after the patient is familiar with regimen B. If the patient has difficulty in maintaining control with regimen C, he is advised to revert to regimen B, which provides greater ease and adjustment of the insulin dosage.

Summary

Dietary management is of major importance in the treatment of children with diabetes, as the nature and severity of the disease are such that insulin therapy is required. In addition to the use of a nutritionally adequate diet, food must be given in the proper relationship to the distribution of insulin and to changes in the patient's physical activity.

The ultimate success of any diabetic regimen will depend on the thorough education of the child and his parents so that they become independent and competent in their abilities to manage the disease. Instruction, therefore, must be simple and straightforward and vary according to the ability of the parents and the child to learn. By using this philosophy of dietary and diabetic management, the child with diabetes can be happy and well adjusted. He need not lead a regimented life but, instead, a flexible, normal life which permits control of the disease and delays or prevents the development of degenerative changes.

Exchange Food Lists may be purchased from the American Dietetic Association, 620 N. Michigan Ave., Chicago 11, and the American Diabetes Association, Inc., 1 E. 45th St., New York 17.

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COUNCIL ON INDUSTRIAL HEALTH

The following three reports have been prepared by the Committee on Industrial Ophthalmology of the Council on Industrial Health. B. DIXON HOLLAND, M.D., *Secretary.*

USE OF WATER IN EMERGENCY TREATMENT OF CHEMICAL EYE INJURIES

The Committee on Industrial Ophthalmology, Council on Industrial Health, American Medical Association, has noted the tremendous saving of eyesight among industrial employees brought about by immediate and thorough flushing of harmful chemicals from the eyes by copious amounts of water. This has been found to be the most important first-aid measure in such cases.

Published reports of research in the use of buffered neutralizing solutions have failed to show superiority of buffer instillation over proper water irrigation. Buffer action is essentially limited to neutralization of acid and alkaline substances. Water irrigation removes chemicals by mechanical flushing.

It is the belief of the Committee that copious irrigation with water is still the most universally available, effective, and practical emergency first-aid treatment of eyes injured by chemicals and is the method of choice in such cases.

EFFECT OF FLUORESCENT LIGHT ON VISION

Fluorescent lighting is occasionally suspected of possessing harmful qualities not found in other forms of artificial illumination or in daylight. Both the ultraviolet and infrared components have been suspected. The Committee on Industrial Ophthalmology, Council on Industrial Health, American Medical Association, makes the following statement:

The ultraviolet energy from clear blue summer sky light is several times as great per foot-candle as fluorescent light.

Light from some fluorescent lamps resembles daylight more closely than that from tungsten-filament lamps. This color resemblance to daylight is a desirable quality.

Infrared energy found in present-day fluorescent lighting produces no known physiological effect except that due to heat. Fluorescent light generates less heat per candle power than tungsten lamps.

Glare may occur in any system of lighting. Its solution rests with proper installation and use.

Individual tasks need different levels of illumination to provide a satisfactory degree of visual efficiency and eye comfort. Recommended levels (in foot-candles) have been established by the American Standards Association and the Illuminating Engineering Society and can be readily achieved through the use of properly installed and maintained lighting.

Some individuals are light sensitive and experience eye discomfort from light regardless of its type or source. Constitutional and pathological factors should be considered, as well as the amount and kind of light.

Noticeable flicker may be present in single tube installations, but usually is eliminated in modern multiple tube fluorescent installations.

Summary

Fluorescent lighting is not harmful to the eyes. It does not cause visual discomfort if properly installed, maintained, and used.

EYE SAFETY EQUIPMENT

It has come to the attention of the Committee on Industrial Ophthalmology, Council on Industrial Health, American Medical Association, that questions have arisen in industry and the lay press as to whether eye safety equipment might produce eye disease. The Committee makes the following statement:

Eye disease is not caused by lenses in eye safety equipment. Substandard or improperly fitted lenses may cause annoyance and discomfort but not disease. Properly fitted safety goggles meeting the specifications of the National Bureau of Standards [1] will eliminate such problems.

The Committee is cognizant of the excellent results achieved in industry by well-conceived and well-executed eye protection programs, and thoroughly endorses them.

Since eye protection programs involve medical eye problems, they are properly a part of industrial medical services and it is essential that such programs be under the supervision of a competent physician. The examination, fitting, and maintenance of eye protective wear should be under the supervision of an eye physician.

Reference

1. American Standard Safety Code for the Protection of Heads, Eyes, and Respiratory Organs, Handbook H 24, U. S. Department of Commerce, National Bureau of Standards, 1938.

The members of the Committee on Industrial Ophthalmology are Edmund B. Spaeth (Chairman), Philadelphia; Franklin M. Foote, New York; Ralph S. McLaughlin, Laconia, N. H.; Joseph F. Novak, Pittsburgh; Ralph W. Ryan, Morgantown, W. Va.

COMMITTEE ON MEDICOLEGAL PROBLEMS

HANDWRITING, SPEECH, AND BEHAVIOR CHANGES

Emil Bogen, M.D., Olive View, Calif.

This report is chapter 8 from a manual, being prepared by the Committee on Medicolegal Problems, dealing with medical and legal procedures involved in the use of chemical tests for intoxication.

The reliability, accuracy, and specificity of the various chemical tests for the alcoholic content of the breath, blood, urine, or other materials have been extensively determined. The correlation between the level of alcohol in the body fluids and the physiological and psychological reactions of the subject have been verified by a multitude of observers. The legality of such examinations has been established not only by scholarly briefs and local, state, and federal court decisions but also by specific legislative enactments.

In any particular instance, however, the possibilities of error in the collection, identification, analysis, and recording of results of the tests may cast doubt on their applicability. The bare report of a laboratory finding may fail to convince a judge or jury in the absence of confirmatory clinical data, especially in the face of a stout denial on the part of the culprit and the array of witnesses who testify to his sobriety. In every case, therefore, it is important that a modicum of observations should be made by the arresting officer and the examining physician and the results recorded to support the results of the chemical tests. Motion pictures, phonographic recordings, and holographic samples of handwriting form additional useful exhibits in some contested cases.

A flushed face, red nose, congested conjunctiva, reflecting peripheral vasodilatation, a fast bounding pulse, deep or rapid respiration, and dilated pupils indicating general excitation or the reverse during the later depressed stages, and hiccups, vomiting, or other visceral effects of alcoholic liquors should be noted. Such symptoms may arise from many other causes, but these may be often excluded by other information and generally are consistent with the chemical findings.

Behavior Change

The most important clinical evidences of alcoholic intoxication are to be sought in the characteristic alterations in the behavior of the individual due to its effects on the central nervous system. These are observed primarily in the psychic sphere, in the intellectual and emotional processes which impel and control the content and form of his behavior. They represent the various stages of anesthesia, progressing with increasing concentrations of alcohol in the blood, from the first imperceptible alterations in judgment and disposition through the various manifestations of central and peripheral nervous disturbances to the deepening stupor and coma which may eventuate in death.

The psychic changes are associated with lowering in the sensory sensitivity with a rise in the threshold of sensation or a lessening of central attention, so that a person is not as conscious of what is happening around him or even of what he is doing himself. The reaction time is prolonged and reflex irritability lessens. Lessening in muscular coordination represents impaired nerve conduction from the brain to the muscles rather than mere muscular weakness.

The earliest influences of alcohol, with blood levels of less than 0.1% are usually so slight as to be readily overlooked. The diminution in inhibitions and social restraints may be at first manifested in slight departures from good taste and manners and lessening in self-control and consideration for others. Affective changes may lead to alterations in mood and disposition, with a feeling of euphoria and good fellowship, along with an increased confidence in one's mental and physical prowess which may lead to dangerous recklessness. At the same time attention, observation, deliberation and judgment, and self-criticism may be blunted and suggestibility and impulsiveness increased. Accidents and crimes may result, therefore, from levels of blood alcohol at which sensory or motor changes remain imperceptible unless delicate measurements are compared with careful observations made previously or later in the absence of alcohol.

In the so-called stage of excitement, when the concentration of alcohol passes 0.1%, self-consciousness and self-control diminish. Some persons become exalted, gay, and garrulous and others sentimental, affectionate, and confidential. Still others become boasting and boisterous or suspicious and bellicose, while some seem depressed and become sluggish, quiet, and sleepy without showing the more usual excitation. There may be emotional instability with sudden shifts from hilarious merriment to maudlin weeping, demonstrative affection to abusive pugnacity. Disorderliness, dirtiness, carelessness, and slovenliness may appear. Hearing and vision become less acute. Muscular movements are active, often unrestrained, and evidences of

muscular incoordination and beginning clumsiness can be detected by careful observation or simple tests.

In the more advanced stages of drunkenness, with blood levels of 0.2% or 0.3%, the mental obfuscation is intensified and incoordination becomes more prominent. The disposition and personality changes become greater; there may be flight of ideas and pressure of activity or sluggishness and loss of attention and response. Dizziness, double vision, or roaring in the ears may develop, and the senses of touch and pain as well as of sight and hearing may be blunted and reflex activity increased. The movements become incoordinated or uncontrolled, the subject may be unable to stand erect without swaying or falling. When his eyes are closed, his gait may become staggering, he cannot walk in a straight line or place his finger unhesitatingly on a desired point. Fumbling movements of the fingers and hands, with the familiar difficulty in inserting a key in a keyhole, or lighting a cigarette, or in buttoning a garment may be noted.

As the intoxication deepens the subject reacts less and less well to the external environment, the early stages of apparent excitation disappear and the stage of apathy and general inertia develops. Ataxia and general incoordination become marked; the subject becomes unable to stand or even to sit up. Consciousness becomes impaired so that only strong stimulations elicit a response. A semistuporous or even comatose condition may ensue, with complete unconsciousness and paralysis and eventual fatality.

Speech Changes

The same kind of changes in thought, feeling, sensation, and action which are seen in general behavior under the influence of alcohol may also be recognized in the activities concerned in speech. These are less noticeable when the patient merely states his name or other familiar material, but they may be elicited on reading or repeating test phrases and may be more noticeable on spontaneous speech as in narrating the circumstances preceding the examination. The first changes in the speech reflect the early changes in the psychic sphere. With lessening of inhibitions, profanity, epithets, and indecent words and gestures are used even in the presence of women or children. The speech is apt to become louder and more rapid and voluble, though occasionally it may become slower and appear stilted. Impairment in enunciation, with slurring and coarsening of speech and the running of words together may be noted. As intoxication develops, the content of speech becomes less restrained, relevant, and intelligent. Slurring and thickening in speech, with lessening in control of the vocal cords, may increase. Mental confusion may be reflected in omissions, transpositions, insertions, repetitions or substitutions of letters, words, or syllables, which may increase with muttering or spasmodic or sporadic inarticulate sounds, snoring, or stertorous breathing until no further sounds may be elicited.

Handwriting Changes

The same processes which produce alterations in speech under the influence of alcohol may be expected to result in analogous changes in the handwriting. The preservation of specimens of handwriting which demonstrate these changes may often supply valuable evidence in a contested case. Even the signature may be affected in overintoxication, but copying from a sample or from dictation, or preferably an extemporaneous writing, such as an account of his condition, are more apt to demonstrate significant alterations. The choice of words and subjects in writing shows the same loss of inhibitions which may be noted in speech and actions. Handwriting at an early stage is apt to be larger and heavier and more ornate than usual. There may be a tendency for the writing to rise or fall, and to vary in the size of letters. Later the changes become more marked and the letters less legible, with more misspellings, crossing out or erasures, overwriting, and with excess duplications, insertions, omissions, or transpositions of strokes, letters, or words similar to the corresponding changes in the enunciation of spoken language. The writing becomes more scrawling and illegible and eventually merely a sprawling line before the person becomes entirely unable to scribble.

Delayed effects of alcoholic intoxication may be seen in persons with alcoholic psychoses, in delirium tremens, in persons recovering from a bout, and in inebriates, whether chronic alcoholics or periodic drinkers. But these effects are to be noted chiefly in the content of behavior, speech, and writing and in the weakness or tremors which may be present, and the incoordination of the acute phases is less often or conspicuously noted.

Individual variations in manifestations of alcoholic intoxication are marked. Loss of coordination which may make a clerk stagger without affecting his handwriting may greatly impair a patrolman's orthography without affecting his gait. An experienced automobile driver may be too drunk to walk and yet succeed in driving long distances mechanically, but without remembering any details of the trip, the condition being comparable to sleepwalking. Under these conditions he would not be prepared for unusual emergencies or particularly parking or backing his car. The range of anesthetic stages under alcoholic influence is so great, and the degree of central nervous disturbance so closely related to the concentration of alcohol in the blood, that an experienced examiner may often infer rather closely the concentration of alcohol that exists from observation of the behavior, speech, and handwriting of the subject. Accordingly, whenever possible the behavior, speech, or handwriting observed during the examination should be compared with that to be noted when the same person is not under the influence of alcohol.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees

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Subscription price . Fifteen dollars per annum in advance
Cable Address . . . . . "Medic, Chicago"

TOXICITY OF IPRONIAZID

IPRONIAZID phosphate, originally investigated in 1952 for its use as a tuberculostatic agent, was found to be of limited usefulness as a chemotherapeutic agent for this purpose because of some undesirable side-effects. Particularly troublesome were such unwanted effects as orthostatic hypotension and other autonomic disturbances, neurological manifestations such as hyperreflexia and clonus, and psychological reactions ranging in severity from minor inappropriateness in behavior to personality changes which may be frankly psychotic. More recently, however, it has been observed that the drug is capable of improving mood and behavior in selected patients with mental depression. Accordingly, it has been considered for more general use as a "psychic energizer."

With more extensive clinical employment of the drug, it is not surprising to find that other adverse reactions have been encountered. By far the most serious toxic effect referable to therapy with iproniazid is jaundice. The exact incidence of this complication is not known, although it is probably quite low. Nevertheless, the appearance of jaundice should be regarded as an ominous sign, since it may be followed by a fulminating type of hepatitis pathologically indistinguishable from acute viral hepatitis. In fatal cases, the onset of symptoms is sudden, and the disease runs a rapidly downhill course. It follows, therefore, that iproniazid is contraindicated in patients with either a history or the presence of jaundice, liver disease, or impaired hepatic function. Furthermore, periodic liver function tests are advisable during therapy.

Iproniazid has a slow and cumulative action. For this reason, and because the incidence of toxic manifestations (particularly jaundice) may be dependent on dosage, the lowest effective dose should be used at all times. The maximum initial dose for ambulatory patients is 50 mg. per day; for institutionalized patients under close medical supervision, the initial dose should not exceed 150 mg. per day. Initial dosage should be reduced rapidly to the lowest levels compatible with satisfactory clinical response. Therapy should be discounted as soon as feasible. As with any potent drug, iproniazid should not be used indiscriminately. Therapy should be restricted to patients with moderate to severe depressions who do not respond to milder central nervous system stimulants. The drug is not indicated for mild, psychoneurotic depressive states.

This is not the first drug to be found capable of inducing reactions, particularly after considerable experience has been accumulated. The sulfonamides and antibiotics are well known examples of drugs known to have harmful possibilities if improperly used and in some instances unpredictable properties. This does not mean, however, that they should not be used; their use should be restricted to situations in which the drugs are clearly indicated with full knowledge of how the advantages may outweigh any disadvantages. So it is for iproniazid. A drug with indicated usefulness should not be unrestrictedly condemned. It should be used only with proper appreciation of its usefulness and limitations. To do otherwise may deprive a patient of a useful remedy, or on the other hand it may cause unnecessary risk.

IMPARTIAL MEDICAL TESTIMONY

In 60 to 80% of all litigation today medical reports or medical testimony is required. The role of medical science and, hence, the role of the physician in the administration of justice are therefore assuming ever increasing importance. Medicine is not unaware of this situation. It realized many years ago that in adversary proceedings—characteristic of our system of jurisprudence—advantage can be taken of the inexactness of medical science. Medicine has also long realized that objectivity and impartiality are the *sine qua non* of good medical testimony. It has recognized the possibility that the trier of the fact, either judge or jury, may be put in a tenuous position because of testimony relating to medical possibility and probability or of testimony concerning accepted therapy or permissible therapy.

Medicine, therefore, in the interest of justice, has been alert to discover systems to insure competent, understandable medical testimony. It has not yet discovered a panacea but it looks with interest and enthusiasm on the New York Impartial Medical

1. Impartial Medical Testimony: Report by Special Committee of Association of the Bar of the City of New York on the Medical Expert Testimony Project, New York, The Macmillan Co. of Canada, Ltd., 1958; reviewed, J. A. M. A. 168:1541 (July 26) 1958.

Testimony Project as a constructive approach to insure testimony that is medically objective, impartial, and adequate.

The legal profession and the judiciary have been equally cognizant of the need for impartial medical testimony and have proposed and tried several plans for this purpose. Through the judiciary of the county of New York, under the leadership of David W. Peck, former supreme court judge, the New York project was started in 1952. After two years of trial, from December, 1952, to December, 1954, the program was reviewed and pronounced a success and has continued its operations to the present. Recently it was extended to the courts in Brooklyn.

Essentially the plan attempts to solve two problems: finding impartial medical experts and making them available, and establishing a procedure for selecting cases in which the program might be helpful. The New York Academy of Medicine, the New York County Medical Society, and the Bar Association of the City of New York all cooperated in the development of this plan.

The medical societies jointly designate doctors of the highest standing and qualifications to be members of 15 panels of specialists. These physicians are then available under a mechanism prescribed by the plan to make an independent, objective examination of the medical aspects of a case in litigation and report back to the court and the interested parties. The actual methods of appointing and using the panelists are described in detail in a report by a Special Committee of the Association of the Bar of the City of New York.[1]

This report includes a very informative analysis by Dr. Irving S. Wright, professor of medicine at Cornell University. In it he points out the poor quality of work done by the medical witnesses who had been retained by the litigants in personal injury cases. For example, in 24 of 100 cases in which x-rays were involved panel experts found serious and obvious mistakes on the part of the previous partisan medical witnesses. Dr. Wright suggests that the most charitable interpretation of such mistakes is that they resulted from ignorance.

In 1954 a somewhat similar system of impartial medical testimony in personal injury cases was established in Baltimore, through the joint efforts of the Bar Association and the Medical and Chirurgical Faculty. In an effort to prevent the individual court-appointed expert from having too much power and too much responsibility, a plan is being suggested in Cleveland which provides that the panel consultant should have his report reviewed and approved by two other panel members before submitting it to the court. Investigations are in the process and plans are being drawn up in a number of other jurisdictions.

A committee of the Section of Judicial Administration of the American Bar Association reported favorably on the use of impartial medical experts in personal injury cases. It stated that where it has been employed there have been these effects:

"1. It improves the process of finding the medical facts, vastly increasing the likelihood of reaching the right result.

"2. It serves to relieve court congestion by bringing about the settlement of many cases which would otherwise have to be tried and which by their nature would entail lengthy trials.

"3. It has a prophylactic effect upon the formulation and presentation of medical testimony in court.

"4. The modest cost involved in the payment of independent experts is a positive economy in effecting a large saving in court operations."

As a result of this report, the House of Delegates of the American Bar Association in 1957 resolved, "That the American Bar Association adopt a national program, to be implemented at the local level, of fostering the creation and employment of impartial medical experts, under court aegis in the pretrial consideration and trial of personal injury cases especially in those communities where there is a volume of personal injury litigation in the courts and where there is a sufficient number of qualified doctors available to constitute a panel; that the panel be selected by professional bodies on the basis of professional qualifications."

For medicine the New York plan and similar programs represent an important and significant experiment in the field of medical expert testimony. If the programs are to develop, however, it is clear that they must have the wholehearted, intelligent cooperation of physicians. No reason has been advanced for withholding such cooperation. On the contrary many good reasons exist which merit the cooperation of physicians in these programs to insure that they do promote objective, impartial testimony within the framework of our established system of jurisprudence.

INCREASE IN PARALYTIC POLIOMYELITIS

Reports to the Public Health Service reveal that the incidence of paralytic poliomyelitis during the last three weeks of July was equal to or greater than that for the corresponding weeks of 1957. At least one-fourth of the states have reported more patients with paralytic poliomyelitis so far this year than for the same period of 1957. States and territories reporting significantly large numbers for 1957 included Connecticut, New Jersey, West Virginia, Florida, Kentucky, Montana, Hawaii, and Puerto Rico. Two localized epidemics or at least "increased incidence" areas have been reported in Montana and southwestern Virginia. Another has been reported in Hawaii, principally among dependents of military personnel. Only one was reported in 1957, this in the District of Columbia. In view of the experience of 1958, physicians are urged to warn their patients about the need for continuing with the poliomyelitis vaccination program. There is an adequate supply of material. It remains now only for it to be used.

ORGANIZATION SECTION

STATEMENT CONCERNING COMMITTEES ON PATIENT CARE

The National Joint Commission for the Improvement of the Care of the Patient recommends the formation, in individual hospitals, of committees on care of the patient. Believing that professional people whose work is interrelated and mutually dependent can serve the patient more effectively when there is an opportunity for cooperative planning, free discussion of problems, and evaluation of coordinated activities, representatives from five national groups have met together, since 1948, as the National Joint Commission for the Improvement of the Care of the Patient. The groups represented are the American Hospital Association, American Medical Association, American Nurses' Association, National Federation of Licensed Practical Nurses, and the National League for Nursing.

The commission is advisory in nature. Its decisions are in the form of recommendations to the parent organizations, subject to their ratification. It neither legislates nor sets policy for its members. Its most significant contribution to better patient care is the part it plays in bringing together at regular intervals the national representatives of the people who provide that care.

In 1953, the National Commission, through the parent organizations, recommended that similar conference groups be established in each state. To date, the states that have reported such commissions are Arizona, Arkansas, California, Connecticut, Florida, Illinois, Indiana, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Montana, Nebraska, New Hampshire, New York, North Carolina, North Dakota, Oregon, Pennsylvania, Rhode Island, South Dakota, Texas, Washington, and Wisconsin.

The Joint Commission endorsed the publication of the booklet prepared by the Health Resources Advisory Committee of the Office of Defense Mobilization entitled "Mobilizing Your Personnel Resources for Better Patient Care." This booklet provides an excellent guide for fostering better understanding within the various groups giving service to patients in a hospital.

Conference groups have already been established in a number of hospitals. A review of articles in the professional publications indicates that these groups are called by different names, have different organizational patterns, different membership composition, and different methods of procedure. But all have one common aim—the improvement of patient care.

The experiences reported to date indicate that these committees are making an important contribution. Therefore, the NJCICP, through its parent organizations, recommends:

1. That committees on patient care be appointed in individual hospitals. Their purpose should be to improve the care of the patient through better communications and through clarification and coordination of operational activities. In hospitals without separate clinical services, one committee may meet the need. In larger hospitals separate committees may be needed for each clinical service (e. g., the medical service patient care committee) or for each patient care unit.

2. That such committees include a core of members from the medical staff, nursing service, and hospital administration. Equally important is representation from those departments whose responsibilities touch upon the problems considered by the committee. For example, representatives from the dietary, admitting, social service, and other departments may not always be regular members but should be invited to attend when matters are discussed that concern their departments.

It is the thinking of the Joint Commission that such committees would be advisory in nature and not intended to substitute for administrative decisions. Their great value lies in what they can accomplish through better understanding among the various staffs, freer discussion of relationship problems, and exploration of new and better ways to improve care of the patient.

CHANGE OF ADDRESS

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PROCEEDINGS OF THE SAN FRANCISCO MEETING

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE ANNUAL MEETING IN SAN FRANCISCO, JUNE 23-27, 1958.

The actions of the House of Delegates at the San Francisco Meeting are abstracted below so that the reader may have this information in digest form. **The recommendations of the various Reference Committees as reported in this abstract were adopted by the House of Delegates unless otherwise indicated.** *The official proceedings will be made available in a booklet which will be sent to all members of the House of Delegates and officers of the American Medical Association. This booklet will not, however, be available for several weeks.*—ED.

The meeting of the House of Delegates in San Francisco was called to order on June 23, 1958, with an attendance of 195 delegates out of a possible 198.

Awards and Citations.—Dr. Frank Hammond Krusen, Rochester, Minn., was elected the 1958 recipient of the Distinguished Service award of the American Medical Association for his outstanding achievements and contributions in the field of physical medicine and rehabilitation.

Mrs. Charles W. Sewell, Otterbein, Ind., and Mr. Gobind Behari Lal, Los Angeles, Calif., received citations from the American Medical Association for distinguished service in advancing the ideals of medicine.

Dr. Virgil P. Sydenstricker, professor emeritus of medicine at the Medical College of Georgia, was awarded the 1958 Goldberger award in clinical nutrition.

Remarks of the Speaker.—Dr. E. Vincent Askey, Speaker, in his address to the House, stated that pursuant to instructions received at the 1957 Philadelphia Clinical Meeting he had made the following committee appointments:

Committee to Study A. M. A. Objectives and Basic Programs

Members of the House of Delegates
- LEWIS A. ALESEN, *Chairman*, California
- THURMAN B. GIVAN, New York
- MILFORD O. ROUSE, Texas

Members of the Board of Trustees
- HUGH H. HUSSEY, Washington, D.C.
- JAMES Z. APPEL, Pennsylvania
- RAYMOND M. MCKEOWN, Oregon

Committee to Study the Scientific Assembly
- ALPHONSE MCMAHON, *Chairman*, Missouri
- CLEON A. NAFE, Indiana
- CHARLES L. LEEDHAM, Ohio
- JAMES GREENOUGH, New York
- DONOVAN WARD, Iowa

The Speaker reconstituted the Committee on Medical Practices as follows:
- LESTER D. BIBLER, *Chairman*, Indiana (reappointed to 3-year term, expiring 12-31-60)
- RUFUS B. ROBINS, Arkansas (reappointed to 3-year term, expiring 12-31-60)
- ELMER G. SHELLEY, Pennsylvania (present term expires 12-31-59)
- JAMES P. HAMMOND, Vermont (appointed to fill unexpired term of Dr. Warde B. Allan, resigned, which expires 12-31-58)
- W. ANDREW BUNTEN, Wyoming (present term expires 12-31-58)

The Speaker drew attention to the procedures and traditions of the House of Delegates as well as to the *modus operandi* of presenting business to the House for its consideration, and mentioned that an increasingly important part of the meetings is the attendance of the alternate delegates. He suggested that the constituent medical societies should consider sending alternate delegates to each meeting and underwriting their expenses.

The Reference Committee on Reports of Officers, to which the remarks of the Speaker were referred, indicated that as usual his remarks were appropriately informative, thoughtful, and constructive. Of particular interest to the committee was the concern the Speaker exhibited over the nebulous status of alternate delegates. As it was felt that any solution of the problem must be predicated on an understanding of the attitudes of the constituent medical societies, the committee recommended that the Board of Trustees be instructed to carry out a survey designed to determine the policies of the societies with respect to sending alternate delegates to annual and clinical meetings of the Association.

The Reference Committees as appointed by the Speaker are as follows:

Amendments to the Constitution and Bylaws
- KENNETH C. SAWYER, *Chairman*, Colorado
- NORMAN S. MOORE, New York
- DONOVAN F. WARD, Iowa
- GEORGE S. KLUMP, Pennsylvania
- MILLARD HILL, North Carolina

Board of Trustees and Secretary, Reports of
- J. STANLEY KENNEY, *Chairman*, New York
- DWIGHT WILBUR, California
- EUGENE PENDERGRASS, Section on Radiology
- FRANK J. HOLROYD, West Virginia
- JOSEPH B. COPELAND, Texas

Credentials
- A. A. LAMPERT, *Chairman*, South Dakota
- WILLIAM WESTON JR., South Carolina
- STANLEY WELD, Connecticut
- EDWARD TOUHY, Section on Anesthesiology
- SPENCER KIRKLAND, Georgia

Executive Session
- L. HOWARD SCHRIVER, *Chairman*, Ohio
- CHARLES L. SHAFER, Pennsylvania
- DONALD CASS, California
- WILLIAM D. STOVALL, Wisconsin
- GORDON HARKNESS, Section on Laryngology, Otology, and Rhinology

Hygiene, Public Health, and Industrial Health
- CYRIL J. ATTWOOD, *Chairman*, California
- WILLIAM F. BRENNAN, Pennsylvania
- EARL F. LEININGER, Nebraska
- GEORGE D. JOHNSON, South Carolina
- EDWARD P. FLOOD, New York

Insurance and Medical Service
- THOMAS MCCREARY, *Chairman*, Pennsylvania
- H. RELTON MCCARROLL, Section on Orthopedic Surgery
- J. WALLACE HURFF, New Jersey
- JOHN S. DETAR, Michigan
- THURMAN GIVAN, New York

Legislation and Public Relations
R. J. Azzari, *Chairman*, New York
Paul D. Foster, California
Francis F. Holland, Florida
J. Arnold Bargen, Minnesota
Dan C. Ogle, United States Air Force

Medical Education and Hospitals
Norman A. Welch, *Chairman*, Massachusetts
Peter Murray, New York
Wesley W. Hall, Nevada
Walter C. Bornemeier, Illinois
Willard A. Wright, North Dakota

Medical Military Affairs
Troy A. Shafer, *Chairman*, Texas
W. Vinson Pierce, Kentucky
Francis M. Forster, Section on Nervous and Mental Diseases
Archie O. Pitman, Oregon
H. Thomas McGuire, Delaware

Miscellaneous Business
Frank A. MacDonald, *Chairman*, California
John J. Masterson, New York
Lucien R. Pyle, Kansas
J. M. Pfeiffenberger, Illinois
Charles F. Strosnider, North Carolina

Reports of Officers
James Q. Graves, *Chairman*, Louisiana
Earl W. Mericle, Indiana
B. E. Montgomery, Illinois
Charles G. Hayden, Massachusetts
Harold Gardner, Pennsylvania

Rules and Order of Business
Joseph C. Griffith, *Chairman*, Wisconsin
Ezra A. Wolff, New York
Louis C. Theobald, New Hampshire
B. W. McNease, Alabama
Philip Foisie, Massachusetts

Sections and Section Work
Wilkie D. Hoover, *Chairman*, Oklahoma
H. Kenneth Scatliff, Illinois
Winfred A. Showman, Section on Dermatology
Jesse W. Read, Washington
Kenneth B. Castleton, Utah

Tellers
Earl Malone, New Mexico
Albert T. Sudman, Wyoming
Milo Fritz, Alaska
James Feldmayer, California
Paul F. Orr, Ohio

Sergeants at Arms
C. Paul White, *Master*, Illinois
Eustace A. Allen, Georgia
L. O. Simenstad, Wisconsin

Introduction of New Delegates.—The new delegates introduced were Drs. Robert E. Hastings, Arizona; Donald A. Charnock, California; Henry Gibbons, California; Harlan A. McClure, Colorado; Gray Carter, Connecticut; J. W. Chambers, Georgia; Walter L. Portteus, Indiana; George H. Yeager, Maryland; William Bromme, Michigan; John R. Rodger, Michigan; Rolla B. Wray, Nevada; Paul F. Orr, Ohio; C. L. Berio, Puerto Rico; Samuel B. Hadden, Pennsylvania; Daugh W. Smith, Tennessee; R. Russell Best, Section on Surgery, General and Abdominal; and Col. Floyd L. Wergeland, U. S. Army.

In Memoriam.—The Speaker presented the following list of members of the House of Delegates and/or officers of the American Medical Association, notice of whose death had been received since the 1957 Annual Meeting. The dates following the names indicate the years of service in the House or as officers of the Association.

Bates, W. A., South Dakota, 1933-1935.
Bailey, Clark, Kentucky, 1945-1950; 1953-1957; Vice-President, 1954-1955.
Blaine, Walter C., Illinois, 1919.
Blankenhorn, Marion A., Ohio, Vice-Chairman, Section on Practice of Medicine, 1934-1935; Chairman, Section on Internal Medicine, 1948-1949.
Block, W. H., Louisiana, 1922-1923.
Boswell, Henry, Mississippi, 1922-1924; 1926; 1928.
DeBuys, L. R., Louisiana, 1917-1918; 1921.
DeVigne, Harry C., Alaska, 1926.
Donaldson, Walter F., Pennsylvania, 1923-1927; 1929-1933; 1935-1948.
Drennen, W. E., Alabama, 1915.
Ellis, E. F., Arkansas, 1930-1931.
Fawcett, Ivan, West Virginia, 1938-1949.
Fitzgibbon, John H., Oregon, 1936-1943; Member, Board of Trustees, 1945-1950.
Fouts, Roy W., Nebraska, Vice-Speaker, House of Delegates, 1938-1945; Speaker, House of Delegates, 1946-1947; Vice-President, 1948-1949.
Giordano, Alfred S., Indiana, 1945-1951; Vice-Chairman, Section on Pathology and Physiology, 1949-1950.
Harris, C. H., Texas, 1906.
Hammond, Roland, Rhode Island, 1924-1928; 1930-1933; 1937-1938.
Hart, W. Lee, U.S. Army, 1928; 1930.
Kindleberger, C. P., U.S. Navy, 1930.
Kump, Albert B., New Jersey, 1953-1955.
Lockwood, Ira Hiram, Missouri, Vice-Chairman 1950-1951, and Chairman, 1951-1952, Section on Radiology.
Matas, Rudolph, Louisiana, 1903, Chairman, Section on Surgery and Anatomy, 1907; Vice-President, 1932-1933.
McCracken, J. H., Texas, 1912.
Mellen, Dan, New York, 1956-1957.
Orton, Henry B., New Jersey, Chairman, Section on Laryngology, Otology, and Rhinology, 1948-1949.
Paryzek, Harry V., Ohio, 1942; 1944-1946.
Peacock, Cassius Lee, Louisiana, 1944; 1946.
Pedersen, V. C., New York, 1910.
Pruitt, Marion C., Georgia, 1942.
Rice, E. E., Oklahoma, 1911.
Risser, Arthur S., Oklahoma, 1941-1944.
Robinson, George W., Missouri, 1913; 1924-1927.
Ross, Alonzo A., Texas, 1930-1933; 1935-1940.
Schmidt, Louis E., Illinois, Secretary, 1912-1915, and Chairman, 1916, Section on Genito-Urinary Diseases.
Senear, Francis E., Illinois, Secretary, Section on Dermatology and Syphilology, 1929-1933.
Shephard, John Hunt, California, 1933; 1935-1936.
Smith, Scott Lord, New York, 1945-1951.
Sprague, B. H., South Dakota, 1918.
Thigpen, Charles A., Alabama, 1916.
White, John Hutchings, Oklahoma, 1913-1914.
Winslow, Floyd S., New York, 1933-1952; 1954-1957, Member, Council on Constitution and Bylaws.

The House rose in silent tribute to the memory of its deceased members.

Distinguished Guests.—The following distinguished guests were introduced by the Speaker:

Mr. E. D. Bronson, American Bar Association
Dr. B. C. Kingsbury Sr., American Dental Association
Drs. Russell A. Nelson and Edwin L. Crosby, American Hospital Association
Dr. H. E. Kingman Jr., American Veterinary Medical Association

Dr. Walter Hedgcock, British Medical Association
Dr. A. D. Kelly, Canadian Medical Association
Dr. S. C. Sen, Indian Medical Association
Mrs. Muriel C. Henry, National League for Nursing
Mr. Harry P. Loynd, Pharmaceutical Manufacturers Association
Mr. Louis J. Fischl, American Pharmaceutical Association
Miss Evelyn M. Hamil, American Nurses Association

Woman's Auxiliary.—The President of the Woman's Auxiliary, Mrs. Paul C. Craig, addressed the House of Delegates indicating that future plans of the Auxiliary will be focused on the correlation and continuity of its activities through increased communication with the state auxiliaries as well as with organizations whose interests dovetail with those of the Auxiliary.

The Reference Committee on Reports of Officers, to which the address was referred, was impressed with the progress the Auxiliary had made and expressed the gratitude of the House for its outstanding job.

Address of the President.—Dr. David B. Allman, President, delivered his address, which was referred to the Reference Committee on Reports of Officers. Dr. Allman summarized accomplishments of the past year; he pointed out that the A. M. A. had taken a positive attitude in the field of federal legislation affecting the health and safety of the American people, and expressed the following hope: (1) that every physician will rededicate himself to the service of mankind and that every medical society will strengthen its disciplinary system to prevent the very few from besmirching the vast majority; (2) that members of the medical profession—as American citizens—be high-minded, incorruptible men and women above reproach; (3) that the House of Delegates and the entire medical profession continue to have a profound sense of duty and of social justice; and (4) that the final criterion of any contemplated step be the greatest good for the greatest number.

The Reference Committee expressed its agreement with the hopes of Dr. Allman and congratulated him on his report.

Address of the President-Elect.—Dr. Gunnar Gundersen, President-Elect, delivered his address, which was referred to the Reference Committee on Reports of Officers. Dr. Gundersen urged that active cooperation be given to the Committee to Study A. M. A. Objectives and Basic Programs and stated that closer liaison and constructive planning in conjunction with specialty groups and other medical organizations is essential to achieve the kind of medical unity which will serve the best interests of both medicine and the public. Dr. Gundersen further stated (1) that a re-evaluation of the A. M. A. legislative situation is necessary, which will involve a reorganization of the Washington Office; (2) that the A. M. A. intends to expand its states relations and make every effort to strengthen the bonds between all levels of medical organization, national, state, and local; and (3) that another matter of concern is the better coordination of the Association's research program.

The Reference Committee commended Dr. Gundersen on his ability to express himself and joined him in urging closer liaison and constructive planning in conjunction with specialty groups and other medical organizations.

Report of the Secretary.—Dr. George F. Lull, Secretary, presented his report, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

Application of Virgin Islands Medical Society

On June 2, 1958, the Secretary received a communication from the Virgin Islands Medical Society dated May 24, 1958, which constituted an application by the Society to become a constitutent society of the American Medical Association. Accompanying the application was an oath of allegiance to the Constitution, Bylaws, and Principles of Medical Ethics of the Association, signed by all of the members of the Virgin Islands Medical Society, together with a copy of its Constitution and Bylaws.

The Reference Committee, although cognizant that the chartering of a new constituent society is not a common event, believed that the Society had complied with the necessary requirements, and therefore recommended that the admission of the Virgin Islands Medical Society as a constituent society of the American Medical Association be approved in principle. It suggested that this matter be referred to the proper department of the A. M. A. for favorable action after all the pertinent facts have been obtained with the advice and counsel of the Law Department.

Resignation of Dr. Mulholland

The Secretary reported that he had received the resignation of Dr. Henry B. Mulholland from the Council on Medical Service effective June 25, 1958.

Proceedings of the House

Dr. Lull reported that the June 1957 Proceedings of the House of Delegates had been mailed to members of the House and others during the first part of June, and that the December 1957 Proceedings were mailed during the latter part of June. He also pointed out that the format of the Proceedings had been revised and comments and suggestions would be welcomed.

The Reference Committee approved of the revised format of the Proceedings and commended the Secretary's Office for instituting these changes.

Report of Board of Trustees.—The Speaker referred items in the report of the Board of Trustees as printed in the Handbook of the House of Delegates (see THE JOURNAL, May 17, pages 343-345) as indicated below:

Reference Committee on Reports of Board of Trustees and Secretary
Matters Referred by House of Delegates
Financial Statement

Matters Referred by House of Delegates

Aviation Medicine.—The Reference Committee noted that the Board complied with the directive of the House, adopted at its 1957 Philadelphia Meeting, which recommended that a completely adequate and competent medical department be established in the Civil Aeronautics Administration, directly responsible to the C. A. A. Administrator. A statement had been sent to Sen. Warren G. Magnuson urging the passage of S. 1045, 85th Congress, to accomplish the purpose of the directive. The committee commended this action of the Board, but recommended continued efforts on the part of the Association to secure the enactment of appropriate legislation because of the rapidly expanding activities in the field of aviation medicine.

Identification of Hospital Solutions.—The Reference Committee approved the action of the Board in instituting a study of this subject by the Council on Drugs. The complete report of the Council was published in THE JOURNAL (April 19, page 1988).

Vaccine Distribution.—The Reference Committee called the attention of the House to the brief résumé of the situation. It was in agreement with the Board of Trustees and the Committee on Influenza that the Association should exercise leadership in developing a complete stand-by program and emphasized the over-all importance of the whole vaccine distribution problem. It urged the completion of the forthcoming supplementary report on mass immunization at the earliest date possible, and recommended that no action be taken at this time.

Rehabilitation Consultation Service.—The Reference Committee agreed with the need for the establishment of an integrated rehabilitation consultation service to the constituent medical societies, and recommended that the House reaffirm its action of the June 1957 meeting approving the project and urging its early implementation.

American Retirement Plan.—The Reference Committee reviewed the report of the Board and agreed with its opinion that it would not be feasible for the American Medical Association to conduct an investigation of the Social Security System. However, although the Committee recognized the difficulties that would be encountered in persuading the Congress to initiate such an investigation, it believed that renewed effort should be made to accomplish the objectives of the resolution. It recommended therefore that the matter again be considered by the Board of Trustees.

Radioactive Isotopes.—The Reference Committee enthusiastically recommended the appointment of the Committee on Atomic Medicine and Ionizing Radiation as reported by the Board, and further recommended that the committee concern itself with informing the American public from time to time on all phases of radiation hazards, including "fall-out," having to do with the health of the nation.

Financial Statement

The Reference Committee reviewed the financial statement of the Association as rendered by the Board of Trustees and the auditor's report. The committee noted with satisfaction that membership dues were received from 138,600 members in 1957, as compared with receipts from 136,000 in 1956. Careful supervision and management of the Association's resources have resulted in an increasing return on investments, from a yield of 2.96% in 1956 to 3.16% in 1957.

The committee commended the Board of Trustees, the Treasurer, and the General Manager for their sound management of the fiscal affairs of the Association, which has resulted in a substantial increase in its net worth.

Supplementary Reports of Board of Trustees

Supplementary reports were presented to the House by title or by the Chairman, Dr. E. S. Hamilton:

A. Preparation for General Practice.—The Committee on Preparation for General Practice, a study group of representatives of the A. M. A. Council on Medical Education and Hospitals, the Association of American Medical Colleges, the American Academy of General Practice, and the specialty areas, made a preliminary report to present the current thinking of the committee.

The committee report outlined general considerations; as a working definition of the medical practice involved the following statement was adopted by the committee: "General Practice is that aspect of medical care performed by the Doctor of Medicine who assumes comprehensive and continuing responsibility, commensurate with his professional competence, for the patient or his family." It suggested that a new graduate educational program for general practice be developed and that primary consideration be given to an education experience enabling the physician to provide medical care for all members of the family irrespective of age. The graduate program proposed as preparation for general practice is designed to be more comprehensive than the internship in regard to patient responsibility, educational content, and continuity of experience.

Under existing circumstances, the committee believes that a period of at least two years of formal hospital training following attainment of the medical degree is necessary in preparation for general practice of medicine. The two-year period would be minimal even where other factors of educational quality and content are optimal. Such a two-year experience, in the opinion of the committee, would furnish a sound base for further graduate medical education in any field.

The committee recognized that the thoughtful cooperation of specialty groups will be required to implement a sound program of preparation for the general practice of medicine and indicated that formal consultations with such specialty groups will be held as an essential preliminary to the more specific and detailed planning of the proposed minimal program. It expects to include consideration as to whether this program of preparation for general practice should be called an internship or a residency, or identified in some other manner. The committee, in cooperation with specialty groups involved, will give consideration to the type of recognition that may be developed for those individuals who successfully complete a part or all of this proposed program.

The Reference Committee on Medical Education and Hospitals recommended that full consideration of the preliminary report be given by all members of the House of Delegates, and that comments or suggestions be submitted to the Committee on Preparation for General Practice. It commended the efforts and studies of the committee and awaits with interest the completion of its studies and the final report.

B. Commission on Medical Care Plans.—The commission made its sixth progress report indicating that, although it had hoped to have its final report completed by this date, it was unable to finalize its report at the April 11-13 meeting. However, the statistical portion of the report, designated as Part II, Statistical Appendices and Background Materials, had been completed and distributed to members and alternates of the House of Delegates. It is anticipated that the remainder of the report containing other findings, as well as conclusions and recommendations by the Commission, will be completed for consideration at its meeting in September, and subsequently submitted to the Board for review.

The Reference Committee on Insurance and Medical Service approved the progress report and commended the Commission on Medical Care Plans for the tremendous task it has undertaken. The committee indicated that members of the House were favorably impressed with the voluminous amount of data collected as evidenced by the section of the report entitled Part II. It was felt that the studies of this Commission would assist in the solution of the numerous pressing problems discussed at reference committee hearings. The committee, recognizing the desire of the membership for a final report from the commission, urged that the group do its utmost to complete its final report so that it may be considered at the 1958 Clinical Meeting.

C. Resolutions 20 and 24, adopted in December, 1957.—The Board of Trustees following the December, 1957, meeting of the House of Delegates, referred resolutions 20 and 24 concerning the relationship of the medical profession with the United Mine Workers Welfare Fund and with other "third party" mechanisms, to the Council on Medical Service and the Council on Industrial Health for study and recommendations.

A report was prepared by the Committee on Medical Care for Industrial Workers, a joint committee of the two councils; it was approved by the two councils, and submitted to the Board of Trustees by the Council on Medical Service on May 18, 1958. The report expressed agreement with the recommendation of resolution 20 that "medicine's side of this controversy should be presented to the medical profession and subsequently to the public." However, it was suggested that further consideration should be given to the following three specific aspects of the problem before an educational campaign is initiated:

1. Scope and Timing of Educational Campaign.
2. Definition of Term "Freedom of Choice."
3. State or National Educational Program.

The Board of Trustees considered and concurred in the above suggestions but recommended that final action on these resolutions be postponed until the final report of the

Commission on Medical Care Plans is received, inasmuch as two of the items referred to have been the subject of intensive study by the commission.

The Reference Committee on Insurance and Medical Service, although concurring in the opinion of the Board of Trustees that final action on these resolutions should be postponed until the final report of the commission is received, believed that in the interim the Board should implement the purposes of resolutions 20 and 24 to the greatest degree consistent with good judgment, and recommended that the Board consider authorization to the Department of Public Relations to publicize in areas where indicated by local conditions the first part of resolution 20 which reads as follows:

"RESOLVED, that the House of Delegates condemns the current attitude and method of operation of the U. M. W. A. Welfare and Retirement Fund as tending to lower the quality and availability of medical and hospital care to its beneficiaries."

The House of Delegates, however, after considerable debate, adopted the following amendment made on the floor: "that this section of the Reference Committee report be amended to show that our A. M. A. Headquarters staff is directed, under supervision of the Board of Trustees, to proceed *immediately* with the campaign which was originally ordered at Philadelphia last December, that no further delays will be tolerated, and that the Council on Medical Service be relieved of any further responsibility in this matter."

D. AMA-ABA Liaison Committee.—In 1957 at the invitation of the President of the American Bar Association, the Board of Trustees of the A. M. A. appointed three representatives to serve on a joint national medicolegal liaison committee. The Board reported that since its formation the committee has held three meetings at which the following subjects were considered: (*a*) preparation of a national interprofessional code; (*b*) encouragement of state and local medicolegal meetings; (*c*) medical professional liability problems, including preliminary review of malpractice claims by local boards composed of doctors and lawyers; (*d*) medicolegal forms; and (*e*) the possibility of establishing medicolegal courses in law schools and medical schools.

As a result of its deliberations with respect to medicolegal meetings, it is the intention of the joint committee to devise a plan whereby a panel of qualified attorneys and physicians will be made available as speakers to participate at medicolegal meetings at the local, state, and national level. The joint committee prepared and submitted for approval a proposed National Interprofessional Code for attorneys and physicians, intentionally prepared in general terms to permit its adaptation in the light of local conditions and circumstances. The Code will also be presented for approval to the Board of Governors and the House of Delegates of the American Bar Association at its meeting in August, 1958.

The Reference Committee on Miscellaneous Business wholeheartedly approved the report of the joint committee as transmitted by the Board, complimented the committee on the excellence of its report, and recommended the adoption of the proposed interprofessional code. It also expressed the belief that it will be extremely helpful in improving interprofessional relationships between physicians and attorneys.

E. Hypnosis.—The Board submitted an informational report on hypnosis which was developed by its Council on Mental Health acting as a Committee of the Whole to study the medical use of hypnosis. The report stated (1) that the use of hypnosis has a recognized place in the medical armamentarium and is a useful technique in the treatment of certain illnesses when employed by qualified medical and dental personnel; (2) that teaching related to hypnosis should be under responsible medical or dental direction; (3) that as certain aspects of hypnosis still remain unknown and controversial, active participation in high level research by members of the medical and dental professions is to be encouraged; and (4) that the use of hypnosis for entertainment purposes is vigorously condemned. The Board in transmitting the report indicated that it would be submitted for publication in a specialty journal.

The Reference Committee on Hygiene, Public Health, and Industrial Health approved the report and commended the Council on Mental Health for its work.

The House of Delegates adopted the Reference Committee report with an amendment that the hypnosis report be published in THE JOURNAL with the original bibliography appended.

F. Advertising of Over-the-Counter Medications.—In 1957 the House of Delegates adopted two resolutions dealing with television and radio advertising of "patent medicines." One recommended that the Board augment its liaison with the television and radio industry and urge a more careful screening of broadcast material in an effort to eliminate offensive and misleading advertising; the other recommended that the Board continue vigorous opposition to the objectionable advertising pertaining to health and that it support voluntary activities which would accomplish this end.

At the request of the Board, the Department of Public Relations initiated a study of the problem and made the following recommendations to the Board: (1) that the American Medical Association join with other interested groups in setting up an expanded voluntary program, coordinated by the National Better Business Bureau, which will seek to eliminate objectionable advertising of over-the-counter medicines; (2) that the American Medical Association counsel with the National Better Business Bureau in the selection of a physicians' advisory committee; (3) that the established facilities of the American Medical Association, such as the Chemical Laboratory, the offices of the various scientific councils, and the Bureau of Investigation, be made available, so far as is feasible, to aid in the carrying out of this program; (4) that the Public Relations Department continue its liaison work with the various groups involved and assist in the development and operation of this program in any way possible; and (5) that the American Medical Association become a sustaining member of the National Better Business Bureau, giving evidence of its willingness and desire to support this organization in its worthwhile activities.

The Board of Trustees adopted the first four recommendations and reported that it had the fifth recommendation under consideration.

The Reference Committee on Hygiene, Public Health, and Industrial Health endorsed implementation of the recommendations and considered monies spent in this endeavor most justified.

G. Report of AMA—AHA Liaison Committee.—The Board submitted the second report of the joint committee of the American Medical Association and the American Hospital Association to study in-hospital medical professional liability problems. The committee, appointed in 1957, has proceeded with the projects as outlined in its initial report and submitted to the House at its December, 1957, meeting. The committee feels that the results which have been realized thus far are encouraging, and it can fulfill a definite need in the analysis of joint hospital-medical professional liability problems and in the formulation of a sound prevention program which can be implemented by constituent associations and by individual hospitals.

The Reference Committee on Insurance and Medical Service commended the work of the joint committee and, in particular, the efforts of the committee in the matter of the appointment of similar joint professional liability committees

at the state and local level. It urged continued study of the problem and the dissemination of additional information at the grass roots level.

H. Status Report of Activities of Commission on a National Emergency Medical Care Plan.—An informational report on the activities of the commission was submitted by the Board of Trustees. The report outlines in detail background information on the formation of the research program and initiation of the plan of study to establish criteria for the provisions of medical care of the surviving population in the event of an enemy attack on the nation.

Provisions of the contract between the A. M. A. and the Federal Civil Defense Administration are outlined: that the A. M. A. "shall study, develop, and recommend the planning, training, and operational organization needed as a basis for a National Emergency Medical Care Plan for the treatment and care of casualties and noncasualties prior to, during, and after a hypothetical 20 megaton ground burst thermonuclear attack upon a selected geographical area or areas in the United States." Work and services under the contract will be completed on submission to the Federal Civil Defense Administration of the final report and recommendations not later than Nov. 26, 1958.

The Commission on a National Emergency Medical Care Plan was set up under the aegis of the Council on National Defense, the Council on Medical Service, and two physicians from the St. Paul-Minneapolis area, which was selected as the site for the study project. Generally, it was considered that the matching of all available medical resources against the total medical requirements resulting from such an attack would provide a fair test.

Three task forces of the commission have been created composed of representatives from national health and medical organizations. They are (1) Task Force on Organization which shall give consideration as to how organized medicine should best function to participate in both planning and operational roles; (2) Task Force on Personnel Training and Utilization which is concerned with the education and training phase of the project, giving consideration to the study and recommendations for the development policies, means, methods, and programs designed to prepare all health and medical services personnel, professional and nonprofessional, for operational capability in the event of enemy thermonuclear attack; (3) Task Force on Emergency Medical Care which has the responsibility of preparing recommendations concerning the management and care of mass casualties under conditions of limited personnel, supplies, and facilities.

Preliminary reports of the task forces are to be completed during July, 1958, and submitted to the full commission in August, 1958. Concurrently, a report of the field study phase is to be completed by staff members of the commission and, subsequently, a report of the completed study project will be submitted to the Council on National Defense for its review and referral to the Board of Trustees.

It is anticipated that the study project will be completed in November, 1958, in accordance with the terms and conditions of the AMA-FCDA contract.

The Reference Committee on Medical Military Affairs recommended the adoption of the report.

I. Participation in Local Medical Societies by Physicians Employed in Federal Service.—The Board of Trustees, following the December, 1957, meeting of the House of Delegates, referred to the Council on National Defense resolution 29 on the problem of assisting in the accomplishment of the objective of securing active participation in local medical societies (especially where dues are charged) of physicians employed in the federal government, as long as nonpaying membership in the A. M. A. is offered.

The Council and its Committee on Military Medical Affairs decided that because of the variance in local and state society rules and regulations and the frequent change of assignments of medical officers of the several federal medical services, there is no simple or practical solution which can be recommended at this time. The Board of Trustees concurred in the opinion of the Council.

The Reference Committee on Medical Military Affairs recommended the adoption of the report.

J. Accreditation Program for Schools of Nursing.—The Board of Trustees called attention to the fact that, through its Committee on Nursing and its representatives on the National Joint Commission for the Improvement of the Care of the Patient, it has maintained close contact with the nursing profession and that recently the National League for Nursing approved of additional representation from the A. M. A. on its accreditation committee. The Board feels that this will assist it in its efforts to work closely with the nursing profession in this important area.

The Reference Committee on Medical Education and Hospitals recommended approval of the report.

K. Medical Rating of Physical Impairment.—A guide for use in the evaluation of impairment to the visual system, the second in a series, was completed by the Committee on Medical Rating of Physical Impairment and was accepted by the Board. It will be published in a future issue of THE JOURNAL for the information of the profession.

The Reference Committee on Hygiene, Public Health, and Industrial Health recommended approval of the report.

L. A. M. A. News.—Recently the Board of Trustees approved the establishment of a newspaper to be published bi-weekly for distribution to approximately 200,000 physicians. The newspaper will be edited with the idea of keeping the physician informed in the medicoeconomic field, concentrating on news not now carried in other A. M. A. journals. It is planned that the first issue will be distributed on Sept. 22.

The Reference Committee on Reports of Board of Trustees and Secretary recommended the adoption of the report.

Report of Council on Medical Education and Hospitals.—The Speaker referred the report of the Council on Medical Education and Hospitals as printed in the Handbook of the House of Delegates (see THE JOURNAL, May 17, pages 345-347) to the Reference Committee on Medical Education and Hospitals.

The Reference Committee recommended the adoption of the report of the Council which includes approval of a revision of (1) the "Essentials of an Approved Internship" and the "Essentials of Approved Residencies and Fellowships"; (2) the section on "Scope of Training" of the "Essentials of Approved Residencies and Fellowships" in otolaryngology; and (3) the "Essentials of an Acceptable School of Medical Technology."

Report of Council on Medical Service.—The report of the Council on Medical Service covered four primary subjects and was referred to the Reference Committee on Insurance and Medical Service:

(A) Resolution No. 18 (1957 Clinical Session) on Vendor System of Payment. This resolution called for endorsement by the House of Delegates of the ". . . direct or VENDOR system of payments to physicians from public funds for professional services rendered to Public Assistance recipients."

The Council recommended that ". . . the House of Delegates (1) reaffirm the prerogative of the states to determine the allocation of these funds; (2) endorse, in principle, legislation in the Congress which, by amendment to the Social Security Act, would return this right to the individual states; and (3) direct the Board of Trustees to take positive action to implement this policy."

The Reference Committee recommended approval of Section A of the report.

(B) Suggested Guides for Medical Society Sponsored Voluntary Prepayment Medical Benefit Plans. It was recalled that the Council on Medical Service had a Seal of Acceptance Program during the years 1946 to 1954 which applied to health insurance plans sponsored or approved by medical societies. That program was based on standards adopted by the Council and approved by the House. When the House terminated the Seal of Acceptance program in June, 1954, it stated that ". . . the Standards and Principles will be maintained as guides for all groups operating or establishing plans."

In the intervening years it has seemed desirable to develop a new approach in the nature of "guides" to eliminate any possible reference to an acceptance or approval program. Accordingly, the Council's Committee on Prepayment Medical and Hospital Service prepared suggested guides for medical society sponsored voluntary prepayment medical benefit plans. The 10 suggested guides, as modified by the Council, were submitted to the House of Delegates for its consideration and approval. It was also indicated that guides for buyers or prospective purchasers of health insurance benefit programs are under consideration and will be reported on at a later date.

The Reference Committee commended the Council on Medical Service for its untiring efforts to produce a set of guides for medical society sponsored voluntary prepayment medical benefit plans. However, it indicated that testimony presented before the committee indicated that there is still diversity of opinion among members of the Council with reference to guide four of Section B. The committee therefore recommended that Section B of the Council's report be returned to the Council on Medical Service for further study and report at the 1958 Clinical Meeting.

(C) Suggested Guides for the Organization and Operation of Medical Society Committees on Aging. It was stated that during the past year the Committee on Aging had been urging medical socities to take an active interest in the problems of aging and has held regional meetings in Seattle, Dallas, District of Columbia, Birmingham, and Omaha to stimulate this interest. One of the objectives was the establishment of committees on aging in all constituent and component medical societies. To assist the societies, the Council submitted a set of "Suggested Guides for Medical Society Committees on Aging" to the House for its approval. The guides have been discussed at the regional conferences and are the result of suggestions from physicians in all types of practice.

The Reference Committee recommended the approval of Section C of the report.

(D) Recommendations regarding Hill-Burton Hospital Survey and Construction Program. A printed abstract report on the Hill-Burton study was attached to the report of the Council, representing the key portion of a 100-page mimeographed report prepared by the Committee on Medical and Related Facilities following two years of intensive research and field work. Both documents were approved by the Council on Medical Service. The report recommended that (1) the Hospital Survey and Construction Program should be continued although its objectives should be redefined and certain changes made to render it more effective; (2) the states be permitted to establish priorities in accordance with their individual needs; (3) all categorical grants be eliminated permitting the states to allocate funds to the various types of hospital and medical facilities according to their needs; (4) the term, "diagnostic or treatment center," should be eliminated from any listings in the Act; (5) the term, public health center, be eliminated from any listings in the Act; (6) there be established a program which would provide for federally guaranteed long-term loans at low interest rates for the construction or renovation of hospitals and nursing homes; (7) the Surgeon General be requested to appoint a physician in private practice as a member of the Federal Hospital Council and that this physician be selected from a list submitted by the American Medical Association; and (8) each state medical association take steps to obtain adequate representation on its own state hospital advisory council.

The Reference Committee was sincerely impressed with the report of the Hill-Burton study by the Committee on Medical and Related Facilities of the Council on Medical Service. It felt that the report, factual and complete, represents the type of work which redounds to the credit of the Association, and that all who contributed to its preparation are to be congratulated. The committee recommended approval of Section D of the report.

Special Report of Council on Constitution and Bylaws.—The special report of the Council on Constitution and Bylaws was referred by the Speaker to the Reference Committee on Amendments to the Constitution and Bylaws.

Reserve Officers—Indian Service

At the 1956 Clinical Session in Seattle, the House amended the Bylaws in two particulars. 1. It eliminated reference to the Indian Service from Chapter 1, Section 2, relating to Service members because of the fact that the Indian Service is now a part of the Public Health Service. 2. It added to the same section reference to commissioned medical officers of the reserve components on extended active duty with the several branches of the armed forces and the Public Health Service so as to make such officers eligible for Service Membership. Similar changes had not been made in the Constitution. Reference to this situation was called to the attention of the House in June, 1957, but no action could then be taken because amendments to the Constitution must lay over for one session. In order to eliminate these inconsistencies between the Constitution and the Bylaws the Council recommended adoption of the amendments to Article V, Section 2 of the Constitution.

The Reference Committee recommended the adoption of the recommended amendments to Article V, Section 2, of the Constitution, which would then read as follows:

"Article V—Members; Section 2—Service Members.—Service Membership shall be limited to regular commissioned medical officers and commissioned medical officers of the reserve components on extended active duty with the United States Army, the United States Navy, the United States Air Force, and the United States Public Health Service and the permanent medical officers of the Veterans Administration subject to the provisions of the Bylaws."

Service Members

At the December, 1957, session of the House of Delegates Resolution 7 on Service Membership was considered, and in view of the complexity of the question, which involves changes in the Constitution and Bylaws of the Association, was referred to the Council on Constitution and Bylaws for further study.

The Council considered this problem at its meeting in Chicago in March, 1958, at which representatives of the Secretary's office and the Membership Department of the A. M. A. were present. The Council also had the benefit of several written statements expressing the opinions of some of the constituent societies concerning Service Memberships, and of a full and free discussion of the historical basis for Service memberships and the various changes that have been made in that classification during the years. It was brought out that the Membership Department did, in the past, give Service Membership precedence over all other classification of membership when a doctor entered the regular Army or one of the reserve components, but that that procedure is no longer followed. Since January, 1957, an active member of a constituent society is retained in that classification if that is his desire and if the rules and regulations of the constituent society permit it.

The principal comments of the group were directed toward the problem of physician employees of the Veterans Administration, particularly so far as the need for Service Membership by that group is concerned. Attention was called to the fact that the physicians employed by the Veterans Administration are in no sense members of the armed forces. They are civilian physicians who, of their own free will, contract to render services to the Veterans Administration in return for a certain amount of money. Many of the employes of the VA carry on a part-time private medical practice sometimes referred to as "sundown practice." The Council believed that it is not wise for the Association to encourage the creation and perpetuation of Service Memberships among physicians who are able to engage in the private practice of medicine, and that these physicians should be encouraged to obtain membership in a component and constituent society. The Council, therefore, recommended that the Constitution and Bylaws be amended so as to eliminate from eligibility for Service Membership physician employees of the Veterans Administration. The recommendations relating to the Constitution must, of course, lay over until the next session. The recommendations relating to the Bylaws may be acted on at this session.

The Reference Committee heard extensive testimony; representatives of the Veterans Administration testified that full-time career personnel of the VA, in all categories, are forbidden to accept remuneration directly or indirectly from outside sources. Full-time physicians in the VA number approximately 4,000, and part-time attending physicians and consultants total approximately 11,000 additional physicians. The 11,000 are eligible for membership in the constituent medical societies. Of the 4,000 full-time physicians, however, about 70% apparently are not eligible for active membership in the constituent medical societies where they reside, because of licensure and residence requirements of those societies. The committee recognized the distinction between the relatively permanent personnel assignments of the VA and the shorter assignments of physicians in the uniformed services. It agreed with the Council that these physicians should be encouraged to obtain membership in a constituent medical society when they are eligible. However, the committee believed that elimination of eligibility for service memberships of medical officers in the VA requires more study, and that it would be unwise to remove such eligibility, without first offering an alternative which will keep those physicians within organized medicine.

Accordingly, the Reference Committee recommended (*a*) that eligibility of full-time Veterans Administration personnel for service membership should be determined by strict adherence to the present provisions of Division One, Chapter I, Section 2 of the Bylaws. This Section requires certification by the Chief Medical Director of the Veterans Administration, rather than by the medical director or resident manager of any individual Veterans Administration hospital. Such strict adherence to the Bylaws will provide a reliable checklist for the use of the A.M.A. Membership Department in the same manner as such lists are now provided by the surgeons general of the armed forces; and (*b*) that the entire matter of service membership be re-referred to the Council on Constitution and Bylaws for further study with the request that the Council develop some alternative method of determining eligibility for service membership which will be equally applicable to all service memberships.

Scientific Assembly

At the Philadelphia meeting last December, the Board of Trustees recommended the appointment of, and the Speaker appointed, a Committee to Study the Scientific Assembly. As a part of its study, that committee, composed of Dr. Alphonse McMahon, Chairman, and Drs. James Greenough, Charles Leedham, Cleon Nafe, and Donovan Ward, concluded that a number of changes should be made in the Bylaws of the Association in order to permit the Scientific Assembly to function more freely and efficiently. Accordingly Drs. McMahon and Leedham of the committee and Dr. Thomas G. Hull, Secretary of the Council on Scientific Assembly, attended the March meeting of the Council on Constitution and Bylaws and outlined some of the Bylaw changes the committee felt to be needed.

The Reference Committee considered this section of the report of the Council on Constitution and Bylaws together with the report of the Committee to Study the Scientific Assembly. The committee believed that the proposed changes in the Bylaws would provide for a more efficient operation of the Scientific Assembly. It therefore recommended adoption of the recommended amendments to Division Two.—Scientific Assembly, of the Bylaws, which would then read as follows:

BYLAWS

Division Two.–Scientific Assembly; Chapter VI.–Meetings
Section 1. General. No change
Section 2. Inaugural. No change
Section 3. Rules and Regulations.–All activities of the Scientific Assembly shall be conducted in accordance with rules and regulations promulgated from time to time by the Board of Trustees.

Chapter VII.–Sections
Section 1. Titles. No change
Section 2. New Sections. No change
Section 3. Section Officers.–The officers of each section shall be a chairman, a vice chairman, a secretary, the delegate, a representative to the Scientific Exhibit and such other officers as the section may deem advisable. They must be Active or Service Members and shall, with the exception of the secretary and the delegate, serve for one year or until their successors assume office. The secretary shall be elected for a term of three years and he may succeed himself only once. If a vacancy occurs in the office of chairman, vice chairman, or secretary of the section, the executive committee of that section shall elect an eligible Member to fill the vacancy until the next annual meeting. Each section except the Section on Miscellaneous topics shall elect biennially one delegate and one alternate to the House of Delegates of the American Medical Association to serve for two years.
Section 4. Election of Section Officers. No change
Section 5. Section on Miscellaneous Topics. No change
Section 6. Duties of Section Officers.
(A) Chairman. No change
(B) Vice-Chairman. No change
(C) Secretary.–The secretary shall arrange the program with the cooperation of the chairman and in accordance with the rules and regulations of the Board of Trustees. He shall perform such other duties pertaining to his office as may be provided by the Bylaws and regulations of the Association or of the section.
(D) Section Representatives to the Scientific Exhibit. No change
Section 7. Executive Committees of Sections.–Each section shall have an executive committee which shall consist of the chairman, the immediate past-chairman, the vice-chairman, the secretary, and the section delegate. In case of absence of a majority of the executive committee of the section from a Scientific Assembly, the chairman shall appoint one or more members of the section to constitute a majority. The executive committee shall determine the suitability for publication of the papers read before the sections. The nominating committee of the section shall consist of three members appointed by the chairman.
Section 8. Section Meetings.–Sections shall hold meetings in accordance with the program for the Scientific Assembly, as promulgated by the Board of Trustees.
Section 9. Participation in Section Work. No change

Section 10. Presentation of Resolutions.–Resolutions for consideration by the House of Delegates shall be presented before a section not later than the regular executive session on the first day of the section meetings.

Section 11. Section Rules.–Each section may make rules for the conduct of its proceedings, provided such rules shall not conflict with the Constitution and these Bylaws or the rules and regulations of the Board of Trustees.

Chapter VIII.–Publication of Papers

Section 1. Papers the Property of the Association.–All papers and reports presented at any scientific or educational meeting of the American Medical Association or any of its councils, committees, or bureaus, shall become the exclusive property of the Association. However, the Board of Trustees may permit an author to publish his paper elsewhere than in a publication of the American Medical Association.

Hyland Committee Study

At the Philadelphia meeting, the Hyland Committee presented to the House the results of its study of the Heller Report on Organization of the American Medical Association. A number of the recommendations of the Hyland Committee were approved but since they required changes in the Constitution and Bylaws of the Association they were referred to the Council on Constitution and Bylaws with a request to draft appropriate amendments for the consideration of the House at the San Francisco, 1958, session. Pursuant to this reference, the Council met in Chicago on March 22 to draft such necessary changes.

It will be recalled that the House had already approved the elimination of the separate offices of Secretary and Treasurer and the substitution therefor of the office of Secretary-Treasurer. It had also approved the substitution of an Executive Vice-President and an Assistant Executive Vice-President for the offices of General Manager and Assistant Secretary, respectively. The recommended changes consist primarily in those necessary to effect a reallocation of duties required by such substitutions. The Council believes that they clearly express the policy determinations made by the House at the Philadelphia meeting.

The Reference Committee recommended adoption of the proposed amendments to the Constitution and Bylaws, which would then read as follows:

CONSTITUTION

Article VI.–House of Delegates

Section 2. Composition.–The House of Delegates is composed of delegates selected by the constituent associations and by the sections of the Scientific Assembly, as provided in the Bylaws, and of delegates from the Medical Departments of the United States Army, the United States Navy, the United States Air Force, the United States Public Health Service, and the Veterans Administration, appointed by the Surgeon General or Chief Medical Director, as the case may be, of the respective service. The general officers, the Past-Presidents and Past-Trustees of the Association, the Executive Vice-President, the Assistant Executive Vice-President, the Editor of THE JOURNAL of the American Medical Association, the chairmen of the several Councils, and two delegates elected by the Student American Medical Association shall be ex officio members of the House of Delegates without the right to vote.

Article VII.–General Officers

Section 1. Designations.–The general officers of the Association shall be a President, President-Elect, Vice-President, Secretary-Treasurer, Speaker of the House of Delegates, Vice-Speaker of the House of Delegates, and nine Trustees.

Section 4. Terms of Other Officers.–(A) The Vice-President and the Speaker and Vice-Speaker of the House of Delegates shall be elected annually, each to serve for one year or until his successor is elected and installed.

(B) The Secretary-Treasurer shall be appointed by the Board of Trustees from one of its number and shall serve for a period of one year.

(C) Two Trustees shall be elected annually, except every fifth year, when but one shall be elected, each to serve for five years, or until the election and installation of his successor. A Trustee shall not serve for more than two consecutive terms, but a Trustee elected to serve an unexpired term shall not be regarded as having served a term unless he has served three or more years.

BYLAWS

Division one–Membership

Chapter I.–Qualifications, Election, and Rights

Section 1. Active and Associate Members.–A member in good standing of a constituent association of the American Medical Association is eligible for either Active Membership or Associate Membership in the American Medical Association after he has been certified for enrollment by the secretary of the constituent association in the jurisdiction of which he conducts his professional activities to the Executive Vice-President of the American Medical Association, provided he possesses the qualifications set forth in Article V of the Constitution, and provided he is approved for Membership by the Judicial Council. A physician eligible for Active Membership in the American Medical Association becomes a Member of the Association on receipt by the Executive Vice-President of the American Medical Association of his American Medical Association dues, unless he is exempted from payment of dues as provided in Chapter III. Associate Members may attend meetings of the Scientific Assembly but may not vote or hold office in the American Medical Association. They shall not be required to pay membership dues to the American Medical Association and shall not receive any publication of the American Medical Association except by subscription.

Chapter II.–Tenure

Section 1. Termination.–When the Executive Vice-President of the American Medical Association is officially informed that an Active or Associate Member is not in good standing in his component society he shall remove the name of that Member from the Membership roll.

Section 2. Transfer.–Should an Active or Associate Member remove his practice to another jurisdiction he may continue his membership in the American Medical Association by applying for membership in the constituent association in the jurisdiction to which he has moved his practice. Unless his application has been favorably acted upon within two years after such change of practice, the Executive Vice President of the American Medical Association shall remove his name from the roster of Members.

Chapter III.–Dues

Section 2. Method of Payment.–Each Active Member shall pay the annual dues to the constituent association for transmittal to the Executive Vice-President of the American Medical Association.

Section 4. Exemptions.–The Board of Trustees may excuse the following Members from payment of dues, provided they are fully or partially excused from the payment of local dues by their component and constituent associations, except as noted in (D) and (E), and provided the request for exemption is transmitted through the constituent association to the Executive Vice-President of the American Medical Association.

Section 5. Delinquency.–An Active Member is delinquent if his dues are not paid by June 1 of the year for which dues are prescribed and shall forfeit his Active Membership in the American Medical Association if he fails to pay the delinquent dues within thirty days after notice of his delinquency has been mailed to his last known address by the Executive Vice-President of the American Medical Associa-

tion. Members of the American Medical Association who have been dropped from the Membership roll for nonpayment of annual dues cannot be reinstated until such indebtedness has been discharged, but such indebtedness shall apply only to the one year of delinquency.

Division Two—Scientific Assembly

Chapter V.—Registration

Section 1. Registrants.—Only the following shall be permitted to register at any meeting:

(C) Residents and interns who are graduates of approved medical schools and who are certified to the Executive Vice-President of the Association by the superintendents of their respective hospitals.

(D) Medical students of approved medical schools who are certified to the Executive Vice-President of the Association by their respective deans.

Chapter VI.—Meetings

Section 2. Inaugural.—The inaugural meeting shall be held on Tuesday evening of the week of the annual meeting and shall be presided over by the President or in his absence or at his request by the Vice President, until the induction of his successor. The program for this meeting shall be arranged by the Executive Vice-President of the Association, subject to the approval of the Board of Trustees.

Division Three—Business and Legislation

Chapter IX.—House of Delegates

Section 1.

(B) Term.—(2) Secretaries of constituent associations, secretaries of sections of the Scientific Assembly, the Surgeons General of the United States Army, the United States Navy, the United States Air Force and the United States Public Health Service and the Chief Medical Director of the Veterans Administration shall certify delegates and alternates to the Executive Vice-President of the American Medical Association.

(C) Apportionment.—(1) The apportionment of delegates from each constituent association shall be one delegate for each thousand (1,000) or fraction thereof Active Members of the American Medical Association as recorded in the office of the Executive Vice-President of the American Medical Association on December 31 of each year. Such apportionment shall take effect the ensuing January 1 and shall remain effective for one year thereafter. In January of each year the Executive Vice-President of the American Medical Association shall notify each constituent association of the number of delegates to which it is entitled during the current year.

(D) Registration.—(2) A delegate or his alternate may be seated without credentials, provided he is properly identified as the delegate or alternate selected by his association and so certified to the Executive Vice-President of the American Medical Association.

Section 3. Sessions.—(A) Regular.—The House of Delegates shall meet annually on the Monday of the week of the annual meeting and in the same city as the Scientific Assembly of the Association. The House of Delegates shall hold one interim session each year at the time and place designated by the Board of Trustees. Business that may properly come before an annual session may be considered at any interim session subject to the provisions of the Constitution. The provisions of the Bylaws governing the conduct of an annual session, shall apply to an interim session.

(B) Special.—Special sessions of the House of Delegates shall be called by the Speaker on written request of twenty-five or more delegates representing one-third or more of the constituent associations, or on request of a majority of the Board of Trustees. When a special session is thus called, the Executive Vice-President shall mail a notice to the last known address of each member of the House of Delegates at least twenty days before the special session is to be held. The notice shall specify the time and place of meeting and the purpose for which the session is called, and the session shall consider no business except that for which it was called.

Chapter XI.—Standing Committees (Councils) of the House of Delegates

Section 1. Designation and Administration.—The Judicial Council, the Council on Medical Education and Hospitals, the Council on Medical Service, and the Council on Constitution and Bylaws shall be the standing committees of the House of Delegates subject to the administrative direction of the Executive Vice-President.

Section 2. Membership.—(D) The Council on Constitution and Bylaws shall consist of five Active or Service Members elected by the House of Delegates for terms of five years, so arranged that at each annual session the term of one member expires. The President, Executive Vice-President, Assistant Executive Vice-President, a member of the Board of Trustees selected by the Board and the Speaker and Vice-Speaker of the House of Delegates shall be ex officio members of this Council without the right to vote.

Section 4. Officers.—The Councils and Committees shall organize and elect their own officers except that on nomination by the respective Councils, the Board of Trustees shall elect a secretary of the Council on Medical Education and Hospitals and a secretary of the Council on Medical Service and shall fix their salaries.

Section 9. Reports.—Each Council and Committee shall submit an annual report of its work to the House of Delegates at the interim session. All such reports, when possible, shall be transmitted to the Executive Vice-President of the Association before being presented at the interim session. The Executive Vice-President shall provide copies for distribution to the members of the House of Delegates and arrange for their publication in THE JOURNAL of the American Medical Association. Only urgent special reports shall be submitted at the annual session.

Chapter XII.—Reference Committees of the House of Delegates

Section 4. Enumeration.—The following reference committees are hereby provided:

(B) Board of Trustees, to which the reports of the Board of Trustees shall be referred;

Chapter XIV.—Nomination, Election, and Installation of General Officers and Affiliate and Honorary Members

Section 1. Nominations.—Nominations for office, except for Secretary-Treasurer, shall be made from the floor by a member of the House of Delegates. A nominating speech shall not exceed two minutes.

Section 2. Election of Officers.—(A) Time.—Officers of the Association, except the Secretary-Treasurer, shall be elected by the House on the fourth day of the annual session. The House may set the time or hour of such election by adopting an appropriate motion. The Reference Committee on Rules and Order of Business at each annual session shall consider this matter and shall make recommendations to the House.

Chapter XV.—Rights and Duties of Officers

Section 6. Secretary-Treasurer.—In addition to the rights and duties ordinarily devolving on the secretary of a corporation by law, custom or parliamentary usage and those granted or imposed in other provisions of the Constitution and these Bylaws, the Secretary-Treasurer shall (A) Be the official custodian of all securities and the income therefrom owned by the Association, subject to the direction and disposition of the Board of Trustees. The Board may select a bank or trust company to act as custodian in the place of the Secretary-Treasurer of all or any part of such securities and to act as agent of the Association in collecting the income

therefrom. The Secretary-Treasurer shall give bond in such sum as may be fixed by the Board of Trustees, the premium on such bond to be paid by the Association.

(B) Perform such other duties as may be directed by the House of Delegates or by the Board of Trustees.

Chapter XVI.—Board of Trustees

Section 1. Composition.—The Board of Trustees shall consist of eleven members, nine elected as provided in Article VII of the Constitution, and the President and the President-Elect. The Vice President, Speaker and Vice Speaker of the House of Delegates shall attend all meetings of the Board (including executive sessions) with right of discussion but without the right to vote.

Section 4. Rights and Duties.—In addition to the rights and duties conferred or imposed on the Board elsewhere in the Constitution and Bylaws, the Board shall

(C) Appoint annually from one of its number a Secretary-Treasurer who shall assume his duties as a general officer as provided in Chapter XIV, Section 4, of the Bylaws.

(D) Appoint an editor or editors for all or any of the Association's publications. The Editor of THE JOURNAL of the American Medical Association shall be an ex officio member of all standing committees of the Board of Trustees and of the House of Delegates without the right to vote;

(E) Appoint an Executive Vice-President, who shall be the chief executive officer of the Association to manage and direct the activities of the Association. He shall be an ex officio member of all standing committees of the Board of Trustees and of the House of Delegates without the right to vote;

(F) Appoint an Assistant Executive Vice-President. He shall be an ex officio member of all standing committees of the Board of Trustees and of the House of Delegates without the right to vote;

(G) Have the accounts of the Association audited at least annually;

(H) Make proper financial reports concerning Association affairs to the House at its annual session, and

(I) In the event of a vacancy in any council or in any general office of the Association, except that of President or President-Elect or Speaker or Vice-Speaker, may fill the vacancy by appointment until the next annual session of the House, at which time the House shall elect for the unexpired portion of the term, unless otherwise provided for in the Constitution and these Bylaws.

Preliminary Report of Committee to Study A. M. A. Objectives and Basic Programs.—The progress report of the Committee to Study A. M. A. Objectives and Basic Programs was referred by the Speaker to the Reference Committee on Miscellaneous Business.

The committee, appointed by the Speaker pursuant to an action of the House at its 1957 Clinical Meeting, had been charged with the responsibility to consider four matters: (*a*) redefinition of the central concept of the A. M. A. objectives and basic programs; (*b*) placing more emphasis on scientific activities; (*c*) taking the lead in creating more cohesion among national medical societies; and (*d*) studying socioeconomic problems.

The committee met in Chicago on March 15, at which time a questionnaire was developed subject to necessary changes resulting from pretesting. Approximately 3,000 copies of the questionnaire, printed in black ink, together with a statement explaining the genesis of the committee, were mailed on May 14 to the officers, trustees, past-presidents, delegates, and alternate delegates of the A. M. A., the deans of medical schools, the members of A. M. A. councils, secretaries of American Boards, the officers and editors of state and county medical associations and of 133 other national medical organizations. Copies of the statement and questionnaire, printed in blue ink, were sent to a probability sample of 3,900 names drawn from the files of the A. M. A. Directory Department. The committee plans to make at least a tentative report to the House at its 1958 Clinical Meeting.

The Reference Committee urged those who had received a questionnaire to cooperate to the greatest degree possible, and recommended the adoption of the report.

Report of Committee to Study the Scientific Assembly.—The report of the Committee to Study the Scientific Assembly was referred by the Speaker to the Reference Committee on Amendments to the Constitution and Bylaws.

Pursuant to the action of the House at its 1957 Clinical Meeting, the Speaker appointed a committee to study the Bylaws as they pertain to the Scientific Assembly. (See Remarks of Speaker, page 53.)

The committee conferred with the Council on Constitution and Bylaws and its report coincides with the report submitted by the Council to the House of Delegates.

The Reference Committee considered together the report of the Committee to Study the Scientific Assembly and the special report of the Council on Constitution and Bylaws (See Report of Council on Constitution and Bylaws, page 59.)

Annual Meetings

On recommendation of the Board of Trustees, Miami Beach was selected as the site for the 1960 Annual Meeting of the Association and New York for the 1961 Annual Meeting.

No action was taken on the selection of a city for the 1962 Annual Meeting pending additional investigation of facilities offered by several cities.

Election of Officers

The following officers were elected:

President-Elect: LOUIS M. ORR, Orlando, Fla.

Vice-President: W. LINWOOD BALL, Richmond, Va.

Secretary-Treasurer: RAYMOND M. MCKEOWN, Coos Bay, Ore.

Speaker, House of Delegates: E. VINCENT ASKEY, Los Angeles

Vice-Speaker, House of Delegates: NORMAN A. WELCH, Boston

Members, Board of Trustees: WARREN W. FUREY, Chicago; RAYMOND M. MCKEOWN, Coos Bay, Ore., and RUFUS B. ROBINS, Camden, Ark.

Member, Judicial Council: GEORGE A. WOODHOUSE, Pleasant Hill, Ohio

Members, Council on Medical Education and Hospitals: JOHN Z. BOWERS, Madison, Wis.; LELAND S. MCKITTRICK, Brookline, Mass.

Members, Council on Medical Service: JOHN F. BURTON, Oklahoma City, Okla.; REUBEN B. CHRISMAN JR., Coral Gables, Fla., and RUSSELL B. ROTH, Erie, Pa.

Members, Council on Constitution and Bylaws: W. C. BORNEMEIER, Chicago; WILLIAM HYLAND, Grand Rapids, Mich.; and WILLIAM D. STOVALL, Madison, Wis.

Election of Affiliate Members

The following persons were elected to Affiliate Membership in the American Medical Association:

American medical missionaries, nominated by the Judicial Council:

DONALD T. BOSCH, Hohokus, N. J.
NAOMI L. DALTON, Vellore, South India
DONALD R. KINDSCHI, Palo Alto, Calif.
JAY P. MUNSEY, Libya, North Africa
SAMUEL GARDNER RANKIN, Kowloon, Hong Kong
LEON K. RITTENHOUSE, Kingston, B. W. I.
DAVID PAUL RUPPERT, Ethiopia, Africa
RAYMOND E. STANNARD, U. S. O. M. Kathmandu, Nepal
CLIFFORD S. WEARE, Indianapolis, Ind.

Introduction of Resolutions.—The Speaker called for the introduction of resolutions:

Medicare: No. 1.—Dr. Milford O. Rouse for the Texas Medical Association introduced a resolution inviting the constituent medical societies to take action to terminate contracts on Medicare, and calling for the repeal, modification, or amendment of Public Law 569, 84th Congress, so as to provide medical care for the dependents of the personnel of uniformed services through programs underwritten by voluntary prepayment plans, or by pay increases adequate for such personnel to purchase voluntary prepaid insurance. It was requested that copies of this resolution be sent to the President of the United States, members of the Congress, and all constituent medical societies.

The Reference Committee on Legislation and Public Relations felt that as the present Medicare law contains a variety of methods of financing health care costs, the purpose of the resolution could be accomplished through modification of the present implementing directives without the necessity for new legislation. The committee recommended that the resolution be not approved and that the action taken by the House of Delegates at its 1957 New York meeting with respect to resolution 19, which reads in part as follows, be reaffirmed:

"We . . . are recommending that the decision as to the type of contract and whether or not a fee schedule is included in future contract negotiations should be left to individual state determination . . ."

Medicare: No. 2 and 60.—Dr. Charles C. Smeltzer, Tennessee, introduced resolution 2 which protested the continuation by the Department of Defense of the fixed fee schedule, in those states whose doctors hold that this system is not satisfactory, and recommended (1) that the way should be opened by the Department of Defense for the negotiation of contracts under Medicare whereby physicians would be allowed to charge their usual and customary fee for the services rendered, and (2) that the A. M. A. Board of Trustees take all action possible to bring about these requested changes in the policy and administration of the Medicare program.

Resolution 60, introduced by Dr. J. W. Chambers, Georgia, resolved that the A. M. A. inform the Department of Defense immediately of the advantages of an indemnity-type Medicare contract, which would (1) reestablish the physician-patient relationship and eliminate the "complete third party medicine" aspects of the program; (2) decrease the government financial obligation to the patient and thereby eliminate the budgetary need for the restriction of freedom of choice of physician and eliminate the budgetary need for a decrease in the extent of authorized medical care; and (3) increase patient-doctor relationship and responsibility that is recognized by the American Medical Association as being so important in American medicine today, thereby restoring the status of the patient to that of other patients covered by indemnity-type plans comparable with industrial insurance plans. The resolution further recommended that the Association demand that the Department of Defense permit constituent medical societies to negotiate indemnity-type contracts at the earliest possible time.

The Reference Committee on Insurance and Medical Service, which considered these two resolutions together, felt that, since the A. M. A. is already on record as having requested the Department of Defense to permit individual states to negotiate an indemnity type (Medicare) contract, if so desired, and since the Association has a Task Force on Dependent Medical Care under the direction of the Board of Trustees, the committee recommended that these two resolutions be not adopted.

State-by-State Participation in Federal Insurance Contribution Act: No. 3.—Dr. John N. Gallivan for the Connecticut State Medical Society introduced a resolution urging that the A. M. A. approve the principle of state-by-state physician participation under Title II of the Social Security Act, and further that the Association recommend to each constituent medical society the exploration of the feasibility of such participation.

The Reference Committee on Legislation and Public Relations after extensive discussion recommended that this resolution be not approved. In the opinion of the committee, the basic position of the A. M. A. in regard to Social Security is one of opposition to compulsory coverage of physicians. If the Association were to approve the inclusion of all physicians in a particular state, it would be approving the compulsory inclusion of many physicians in that state who are opposed to such coverage.

Indigent Care: No. 4.—Dr. Kenneth B. Castleton for the Utah State Medical Association introduced a resolution calling attention to the fact that confusion, duplication, and waste exist as a result of the multiplicity of programs in effect to provide matching funds to the various states for the medical care of welfare recipients, and making suggestions for their elimination.

The Reference Committee on Insurance and Medical Service was in general agreement with the intent of the resolution which recommended (1) that the A. M. A. bring this situation to the attention of the Congress with the view to complete revision of the program; (2) that the A. M. A. request that any funds provided under the Social Security program for the medical care of the indigent be directed toward the purchase of prepaid medical care, such as Blue Cross-Blue Shield, in order to eliminate the confusion, waste, and duplication and to provide better medical care for such senior citizens; and (3) that the resolution be forwarded to the Committee on Indigent Medical Care of the Council on Medical Service which is now conducting a study of this subject. The committee, however, recommended that section 2 be amended to read as follows: That the A. M. A. request that any funds provided under the Public Assistance provisions of the Social Security Act for medical care of the indigent be administered by a voluntary agency such as Blue Shield on a cost plus basis or by a specific agency established by the medical society of the state in which indigent care is rendered.

Free Choice of Physician: No. 5.—Dr. Robert C. Long for the Kentucky State Medical Association introduced a resolution recommending that the A. M. A. use its resources to develop at the earliest possible date an educational program designed to (1) educate the members of the medical profession to the advantages to the public and the profession of maintaining the free choice of physician system of practice, and (2) inform its members of the dangers to the public and the profession of participation in medical service plans that deny this system and that otherwise tend to lower the quality of medical care. Additionally, it was recommended that the A. M. A., working with the constituent medical societies and at the earliest date feasible, develop a continuing informational campaign designed to educate the public of the evils, dangers, and disadvantages of any medical service plan that tends to lower the quality and efficiency of the medical care it is now enjoying.

The Reference Committee on Insurance and Medical Service endorsed the intent of the resolution and, in particular, emphasized that freedom of choice of physician is basic in the philosophy of medicine. The committee therefore approved the resolution but recommended that its implementation be delayed until the Commission on Medical Care Plans reports at the 1958 Clinical Session. By way of an explanation the committee called attention to the stated purposes of the Commission on Medical Care Plans: To study (1) the nature and methods of operation of the various types of plans through which persons receive the services of

physicians; (2) the effect of these plans on the quality and quantity of medical care provided; and (3) the legal and ethical status of the arrangements used by the various plans.

Opposition to Forand-Type of Legislation: No. 6 and 16.—Resolutions were introduced by Dr. Earl F. Leininger (No. 6) for the Nebraska State Medical Association and Dr. Milford O. Rouse (No. 16) for the Texas Medical Association relating to opposition by the A. M. A. to the Forand bill (H. R. 9467) and any legislation similar in philosophy and intent that would amend Title II of the Social Security Act by introducing a hospital and medical benefit, thereby establishing a national system of compulsory health insurance. The resolutions also requested that a copy of each be sent to the President, the members of the Congress, as well as to the constituent medical societies.

The Reference Committee on Legislation and Public Relations which considered the two resolutions together, recommended that they be approved with the exception of the resolve directing that they be sent to the President and others. The committee believed that publicity concerning the resolutions should be left to the discretion of those individuals within the Association charged with the responsibility of conducting the campaign against Forand-type legislation.

Voluntary Health Insurance for the Aged: No. 7.—Dr. C. C. Sherburne introduced a resolution for the Ohio State Medical Association calling attention to the rising cost of living which has made it difficult for the aged living on pensions or other fixed incomes to meet the costs of medical care, and recommending that the newly created Joint Council to Improve the Health Care of the Aged take immediate steps to confer with voluntary health insuring agencies and organizations on the feasibility of offering a contract which will provide (1) medical and hospital coverage for those beyond the age of 65, and (2) a method whereby the insured may secure paid-up coverage for life through the payment of necessary premiums prior to age 65.

The Reference Committee on Insurance and Medical Service was in general agreement with the intent of the resolution. It approved section 1 of the resolution, but was of the opinion that the second section may not now be considered feasible. The committee called attention to the 1957 Clinical Meeting report of the Reference Committee on Insurance and Medical Service which urged a continuation of studies along these lines. The committee was also of the opinion that it is inappropriate to refer resolutions from this House directly to an interassociation group, such as the Joint Council to Improve the Health Care of the Aged. With these comments in mind, the committee recommended the adoption of the resolution with the suggestion that it be referred to the Board of Trustees for proper implementation.

Automatic Stop Order on Dangerous Drugs: No. 8.—Dr. James M. Kolb, Arkansas, introduced a resolution urging that the A. M. A. express strong opposition to the action of the Joint Commission on Accreditation of Hospitals in advocating an automatic stop order on dangerous drugs, because (1) the dangerous drugs were not defined; (2) it is extremely difficult to have stop orders on some types of medication and not on all medication; (3) since the order has been in effect (December 1957) there have been many instances of patients needlessly suffering; (4) physicians capable of ordering drugs are capable of stopping those same drugs; and (5) the order is an arbitrary and unnecessary invasion of the doctor-patient relationship. Copies of the resolution were to be sent to the Joint Commission on Accreditation of Hospitals, the American College of Physicians, the American College of Surgeons, the American Hospital Association, the Canadian Medical Association, and the American Academy of General Practice.

In the report of the **Reference Committee on Medical Education and Hospitals,** it was pointed out that the regulation was established because of some unfortunate situations affecting the health and life of individuals where automatic stop orders did not exist. While recognizing that any regulation or order is only as effective as those administering it may make it, and that unfortunate situations may arise involving strict interpretation by some, the committee was of the opinion that this regulation is good from the standpoint of the protection of the public. The committee further believed that the proper administration of such a regulation in order to be satisfactory to everyone concerned involves responsibility for its administration on the part of individuals and hospitals in a particular area, and therefore recommended that the resolution be disapproved.

Social Security Coverage for Physicians: No. 9.—Dr. Stanley B. Weld for the Connecticut State Medical Society introduced a resolution instructing the Secretary of the Association to conduct a nationwide referendum on the question of Social Security coverage for physicians, and that the results be reported as soon as possible to the secretaries of the constituent medical societies.

The Reference Committee on Legislation and Public Relations pointed out that as there is no provision in the Constitution and Bylaws of the Association for a referendum of its members, such a referendum would usurp the duties and prerogatives of the House. The committee therefore recommended that the resolution be not approved. (See also discussion on resolutions 19 and 20, page 66.)

Senior Medical Students as Clinical Clerks to Replace First Year Interns: No. 10.—Dr. Philip H. Jones for the Louisiana State Medical Society introduced a resolution calling attention to the fact that nonuniversity affiliated hospitals are experiencing great difficulty in obtaining interns in the numbers and of the caliber they require, and further that many of these hospitals have the facilities for providing excellent intern training programs.

The Reference Committee on Medical Education and Hospitals approved the intent of the resolution that the A. M. A. take appropriate measures to investigate the feasibility of the use of senior medical students in clinical clerkships in the place of first year interns in university affiliated hospitals. It recommended that the resolution be referred to the Council on Medical Education and Hospitals for its information.

Restrictive Effect of Board Certification on Practice of Medicine: No. 11.—Dr. Philip H. Jones for the Louisiana State Medical Society introduced a resolution stating that when board certification groups were first organized they were meant to improve standards and clarify competence of individuals as practitioners in various specialties, but that the act of certification has become stereotyped and is being used restrictively "as a union card" in the practice of medicine in many instances. The resolution requested that the A. M. A. request its representatives on the Joint Commission on Accreditation of Hospitals to exercise their influence to direct that Board certification should not be used as a qualification for staff appointments in hospitals approved by the Commission.

The Reference Committee on Medical Education and Hospitals called attention to the fact that the sentiment expressed by the resolution is one which has been reiterated by the Joint Commission on Accreditation of Hospitals on a number of occasions. The committee recommended approval of the resolution with the following modification: "That the House of Delegates of the A. M. A. request its representatives on the Joint Commission on Accreditation of Hospitals to exercise their influence to direct that Board certification not be used as the sole qualification for staff appointments in hospitals approved by the Commission."

Medicare: No. 12.—Dr. James M. Kolb, Arkansas, introduced a resolution recommending that the A. M. A. request the administrator of the Medicare program to issue a directive to the negotiating team to submit to the wishes of those states in which it is customary to start charging night rates at 7 p. m.

The Reference Committee on Insurance and Medical Service did not believe it was possible to set up a national policy as requested in the resolution and believed that the matter should be left to the decision of the individual states in negotiating their Medicare contracts. The committee therefore recommended that the resolution be not adopted.

The House, however, adopted an amendment made on the floor to the effect that the A. M. A. request the administrator of the Medicare program to issue a directive to the negotiating team to submit to the wishes of each state in all matters in the Medicare program.

Limitation of Exemption for Residents from Payment of Dues: No. 14.—Dr. O. J. Campbell, Minnesota, introduced a resolution requesting an amendment to eliminate the time limitation from the present provisions of Chapter III, Section 4, of the Bylaws of the Association, limiting the exemption for residents from payment of dues to the period of five years following graduation. It was felt that the exemption should be available to members entering residencies and fellowships later than five years after graduation.

The Reference Committee on Amendments to the Constitution and Bylaws agreed with the intent of the resolution except for its reference to fellowships. It was pointed out that fellowships are not now covered by Chapter III, Section 4 (C), of the Bylaws. The committee recommended that the resolution be referred to the Council on Constitution and Bylaws for implementation insofar as it relates to residents, and to residents only.

Relationships Between Medical Profession and Administrators of Medical Care Plan of UMWA: No. 15.—A resolution was introduced by the Tennessee delegation requesting that a special committee composed of three or five members of the House of Delegates be appointed by the Speaker of the House (*a*) to make an investigation of the situation in the states where disputes exist between the medical profession and the administrators of the medical program of the UMWA for the purpose of determining the facts with regard to the origin and the nature of such disputes, (*b*) to report their findings to the House of Delegates at its 1958 Clinical Meeting, and (*c*) that the Board of Trustees make available to the committee the necessary funds and personnel for its proper functioning.

The Reference Committee on Insurance and Medical Service commended the medical profession in Tennessee for the manner in which it has approached problems of medical care in the coal mining areas and for its successful liaison with administrators of the medical program of the UMWA. However, it was of the unanimous opinion that the appointment of a special committee is not now necessary; that a great deal of work has been and is being done by various groups within the Association; and that the creation of a new committee would be a duplication of work and money. The committee further pointed out it is hoped that the Commission on Medical Care Plans will report at the 1958 Clinical Meeting on some of the suggestions made in this resolution. The committee recommended, that in view of the activities already being carried out by the A. M. A., the resolution be not approved.

Inclusion of Physicians Under Social Security: No. 17.—Dr. Milford O. Rouse for the Texas Medical Association introduced a preamble and resolutions requesting that the Association unequivocally oppose the inclusion of self-employed physicians in the Social Security System, and that a copy of the resolution be sent to the President of the United States, the members of the Congress, and the constituent medical societies.

The Reference Committee on Legislation and Public Relations was in favor of the principle expressed by the resolution but recommended the adoption of the following substitute resolution:

WHEREAS, Proposals for the inclusion of self-employed physicians in the Social Security System have been made repeatedly and are now pending before Congress; and

WHEREAS, The matter has been discussed several times before the A. M. A. House of Delegates and its reference committees, yet there remains the necessity of reiterating our position to members of Congress and to the general public that American physicians still strongly oppose being included in the Social Security System; and

WHEREAS, American physicians always have stood on the principle of security through personal initiative; therefore be it

Resolved, That the House of Delegates of the American Medical Association unequivocally opposes the compulsory inclusion of self-employed physicians in the Social Security System.

Jenkins-Keogh Bills: No. 18.—Dr. Milford O. Rouse for the Texas Medical Association introduced a resolution requesting that the A. M. A. again affirm its strong endorsement of the principle of the Jenkins-Keogh plans, urging the prompt and favorable consideration of the proper bills in the present Congress, and that a copy of the resolution be sent to the President of the United States, the members of the Congress, and the constituent medical societies.

The Reference Committee on Legislation and Public Relations recommended approval of this resolution.

Social Security Coverage for Physicians: No. 19 and 20.—Resolutions relating to a poll of the A. M. A. membership regarding the inclusion of physicians in the Social Security System were introduced by Dr. P. J. DiNatale for the Medical Society of the State of New York (No. 19 and 20).

Resolution 19 resolved that a mail poll of the entire membership be undertaken immediately by the Board of Trustees on the question, "Do you favor (yes or no) inclusion of self-employed doctors of medicine in the Federal Social Security System on a compulsory basis?"; that the poll not include any reference to the Jenkins-Keogh bills or coverage on a voluntary basis, but be confined to the latter question, and that the results of the poll be published in THE JOURNAL and reported to the House of Delegates at its 1958 Clinical Meeting.

Resolution 20 resolved that the Secretary of the Association conduct a poll of active members in an attempt to ascertain their feelings for or against compulsory Social Security for physicians.

The Reference Committee on Legislation and Public Relations after lengthy discussion felt that the members of the House of Delegates are sufficiently well informed to represent adequately the views of the physicians of America on this question. It was pointed out that the House of Delegates is the policy-making body of the Association and a poll therefore would be informational only. The committee was of the opinion that any poll should be taken on a state-by-state basis, and the results transmitted to the A. M. A. delegates from each state. The committee accordingly recommended that resolutions 19 and 20 be not approved.

Social Security for Physicians: No. 21 and 22.—Dr. P. J. DiNatale for the Medical Society of the State of New York introduced resolutions (No. 21 and 22) relating to Social Security benefits for self-employed physicians.

Resolution 21 resolved that the A. M. A. call on the Congress of the United States to extend benefits of social security to self-employed physicians, and that the Board of

Trustees take appropriate action in order that there may be federal legislation in support of this policy.

Resolution 22 asked that the Association rescind its 1957 action in not choosing to advocate social security for doctors of medicine under the federal law, and instead affirm approval thereof.

The Reference Committee on Legislation and Public Relations recommended that these resolutions be not approved.

Old Age and Survivors Insurance Program: No. 23.—Dr. P. J. DiNatale for the Medical Society of the State of New York introduced a resolution requesting that the A. M. A. advocate that the schedule of allowances by the Bureau of Disability Determinations be not lower than that adopted for the fee schedule of allowances under the Medicare program in the various states, and that a copy of this resolution be sent to each constituent medical society.

The Reference Committee on Insurance and Medical Service was in agreement with the intent of this resolution and recommended its adoption.

Artificial Respiration for Rescue Work: No. 25.—Dr. James Greenough for the Medical Society of the State of New York introduced a resolution urging that the Association officially adopt and endorse the expired air method of artificial respiration for rescue work.

The Reference Committee on Hygiene, Public Health, and Industrial Health heard testimony presented by qualified experts from the Section on Anesthesiology and others, convinced that the expired air method of artificial respiration is an effective and now possibly the best known method of resuscitation. After due deliberation, however, the committee questioned the advisability of official endorsement of specific techniques by the American Medical Association. It felt that should this practice become common, the meetings of the House might be over-burdened with the consideration of innumerable techniques in all fields of medicine and surgery. It also feared the possible adoption or rejection of such techniques by the A. M. A. without due and careful consideration, and that general acceptance of a procedure by the medical profession might even be delayed while waiting for formal approval. Solely for these reasons of policy, the committee recommended that this resolution be not approved.

The House of Delegates, however, adopted a motion made on the floor that the report of the Reference Committee be amended to indicate that no action be taken on this resolution.

Two-Year Rotating Internship: No. 26.—Dr. Thomas d'Angelo for the Medical Society of the State of New York introduced a resolution urging that medical schools adopt the policy of encouraging a reasonable percentage of graduates to seek rotating internships in accredited municipal and community hospitals, and that a copy of the resolution be sent to the dean of each medical school in the United States.

The Reference Committee on Medical Education and Hospitals recommended that the resolution be referred to the Council on Medical Education and Hospitals for study and necessary action because of the continuing study it is carrying on with respect to the internship.

Shortage of Interns: No. 27.—Dr. William B. Rawls for the Medical Society of the State of New York introduced a resolution requesting that (1) the A. M. A. recommend the two-year rotating internship; (2) the specialty boards give credit for the second year; (3) the armed services be requested to delay their induction until the completion of intern training, whether one or two years, and (4) a copy of the resolution be sent to appropriate agencies.

The Reference Committee on Medical Education and Hospitals recommended that the resolution be referred to the Council on Medical Education and Hospitals for study and necessary action. (See also discussion on resolution 26, this page.)

Operating Room Mortality: No. 28.—Dr. R. J. Azzari for the Medical Society of the State of New York introduced a resolution requesting the Council on Medical Education and Hospitals to develop a classification of, and terminology for, operating room deaths to be promulgated to the constituent and component medical societies, to help in assembling data at those levels. The resolution pointed out that operating room mortality appears to be an increasing hazard in the conduct of surgical practice, and that the lack of definition of the terminology of cardiac arrest and the lack of uniformity in the compilation of operating room mortality statistics does not permit accurate assay of the problem or comparison of these mortality statistics from different areas.

The Reference Committee on Medical Education and Hospitals felt that because of the seriousness of the problem the resolution should be referred to the Board of Trustees with the recommendation that an *ad hoc* committee be appointed to study the entire matter.

Service-Connected Disabilities in Veterans Administration Hospitals: No. 30.—Dr. Durward G. Hall for the Missouri State Medical Association introduced a resolution requesting (1) that the A. M. A. urge congressional action to restrict hospitalization of veterans at VA hospitals to those with service-connected disabilities, and (2) that the organized medical profession of the United States offer to provide the VA with competent attending and consultant staffs of a quality acceptable to dean's committees, provided admissions to VA hospitals are so restricted.

The Reference Committee on Legislation and Public Relations approved a substitute resolution which included item (1) above and recommended that the A. M. A. suggest to the dean's committees that they restrict their activities to VA hospitals admitting only patients with service-connected disabilities.

A. M. A. Mediation Committee: No. 31.—Dr. Eustace A. Allen of the Medical Association of Georgia introduced a resolution requesting that the Board of Trustees be authorized to consider the establishment of a permanent mediation committee to be set up jointly by the A. M. A. and the Association of American Medical Colleges, the committee to be available, when requested by the local medical organization and the medical school concerned, for the purpose of mediating difficulties which have arisen concerning ethics and other matters involving the practice of medicine.

The Reference Committee on Miscellaneous Business recalled that at the 1956 Annual Meeting the relationship between local medical organizations and medical schools involving the practice of medicine was considered, and suggestions were formulated to be followed in considering ethical relationships between these groups. The House at that time recommended that "on request of the medical society or a medical school, the A. M. A. Board of Trustees establish in cooperation with the Association of American Medical Colleges a special committee whose function would be to investigate areas where there is friction between the medical school and the profession. Such a committee might (1) assure the continuation of liaison; (2) see to it that all data and facts are made available to all concerned, and (3) seek to resolve differences of opinion." Recently, a committee of this type was selected to settle problems involving medical organizations and a medical school in Georgia. The committee performed an excellent service and the problems were resolved satisfactorily.

The Reference Committee believed that in view of the excellent results obtained by previous action of the House there is no advantage in the formation of a permanent committee; that there appears to be a lack of information

among medical organizations as to the existence of this plan for the selection of such committees; and that wider publicity should be given to these mediation committees. The committee recommended that the resolution be not adopted.

Relation of Physicians and Hospitals: No. 32.—Drs. Warren W. Furey and W. C. Bornemeier for the Illinois State Medical Society introduced a resolution requesting that a study be made to determine whether or not the growing practice by hospitals of encouraging staff members to conduct their private office practice within or adjacent to the hospital is a major move toward the practice of medicine by hospitals.

The Reference Committee on Insurance and Medical Service believed that a study should be made and recommended approval of the resolution with the further recommendation that it be referred to the Board of Trustees for prompt implementation.

Care of the Aged: No. 33.—Dr. William Weston Jr., South Carolina, introduced a resolution requesting the A. M. A. to urge the Congress to refrain from the passage of laws which would hamper the efforts of the newly created Joint Council to Improve the Health Care of the Aged by making the aged of our population more dependent on the federal government, so that this organization may have reasonable time to work out the solution of the problem in the traditional American way, and recommending that a copy of the resolution be forwarded to members of the Congress with a request that they use their best efforts to implement the purpose expressed therein.

The Reference Committee on Legislation and Public Relations recommended that the resolution be approved and referred to the Board of Trustees for appropriate action. (See also discussion resolution 7, page 65.)

A. M. A. and Other National Medical Associations: No. 34.—Dr. George D. Johnson, South Carolina, introduced a resolution requesting that the Board of Trustees explore the desirability and feasibility of having the House of Delegates meet with some of the larger associations such as the American Academy of General Practice, the Southern Medical Association, and other organizations at their fall meetings.

The Reference Committee on Miscellaneous Business agreed in spirit with the resolution, but felt that meetings between members of these organizations are already occurring and consequently recommended that the resolution be not adopted.

Accreditation of Hospitals: No. 35.—Resolution No. 35 introduced by Dr. Malcom E. Phelps, Oklahoma, requested (1) that the A. M. A. be urged to assume promptly its true responsibility by establishing a plan for accreditation of hospitals, such plan to be limited to the problems of patient care, staff organization, and intern and resident training programs, and (2) that the American Hospital Association be urged to cooperate with the A. M. A. by limiting its accreditation activities to the strictly physical problems of hospital care which unquestionably is its responsibility.

The Reference Committee on Medical Education and Hospitals called attention to the fact that pursuant to action of the House at its 1955 Annual Meeting, a special committee was appointed to review the functions of the Joint Commission on the Accreditation of Hospitals, and that its report was made to the House of Delegates in June 1956. The reference committee also called attention to Section F of the report of that committee which states in subsection 1: "After thorough study the Committee does not believe administrative and professional functions in accreditation can be separated, but believes accreditation of the hospital should be done by the Joint Commission and accreditation of internship and residency programs should continue to be the function of the American Medical Association through its Council on Medical Education and Hospitals."

Because the report of the special committee was accepted by the House, the reference committee recommended that the resolution be not adopted.

Advertising of Proprietary Drugs: No. 37.—Resolution 37 introduced by Dr. Philip S. Foisie, Massachusetts, stated that inasmuch as extensive promotion, particularly by television and radio, of self-medication for common symptoms such as indigestion, constipation, and anemia may postpone the diagnosis of serious disease, (1) that the A. M. A. record its opposition to this dangerous and rapidly growing practice, and (2) that the question be referred to the Board of Trustees for consideration and appropriate action.

The Reference Committee on Hygiene, Public Health, and Industrial Health indicating it was cognizant of the excellent work being voluntarily carried out by organizations concerned with advertising, recommended the adoption of the following amended resolution:

WHEREAS, Extensive advertising and promotion through newspapers, magazines, television and radio of self-medication for common symptoms such as indigestion, constipation, and anemia may postpone the diagnosis of serious illness; therefore be it

Resolved, That the American Medical Association record its opposition to this dangerous practice, and that the question be referred to the Board of Trustees for consideration and appropriate action.

Operating Room Training of Student Nurses: No. 38.—Resolution 38 introduced by Dr. William F. Costello, New Jersey, called attention to the developing tendency in the United States to reduce the operating room experience required in the curriculum for student nurses, and requested that the A. M. A. express its disapproval and stern opposition to curtailment or withdrawal of this experience as incompatible with the rounded development of those professional capabilities desirable and indispensable for the public welfare.

The Reference Committee on Medical Education and Hospitals recommended the adoption of a substitute resolution that recommended that the A. M. A. express the opinion that some operating room experience is valuable and necessary training for all nurses.

Hospital Accreditation: No. 39 and 56.—Resolution 39 introduced by Dr. Philip H. Jones, Louisiana, indicated that the standards and requirements maintained by the Joint Commission on Accreditation of Hospitals are such that they can best be maintained by the larger and teaching hospitals. It suggested that the A. M. A. ask its representatives on the Joint Commission to attempt to make a distinction between the requirements for teaching hospitals and the smaller hospitals, with less teaching facilities, residents, and interns.

Resolution 56 introduced by Dr. Walter C. Bornemeier, Illinois, resolved that the A. M. A. instruct its representatives on the Joint Commission on Accreditation of Hospitals to defend and enhance the role of the physician and county medical societies in medical matters in their own community, and recommended that county medical societies be consulted whenever possible in matters of accreditation.

The Reference Committee on Medical Education and Hospitals reviewed these resolutions together and recommended that they not be adopted. By way of explanation, it was pointed out that in the "Report of the Committee to Review the Functions of the Joint Commission on Accreditation of Hospitals (Stover Committee, 1956) it was recommended that the Commission give consideration to establishing standards which may vary depending upon the size of the hospital. Each hospital should be judged on its own merits and efficiency, regardless of size." It was further pointed out by members of the Joint Commission that some changes had been made in the Commission's regulations pertaining to the organizational structure for small hospitals

and that continued study was being given to this problem. The committee was cognizant of the fact that there can be only one standard of medical care regardless of size of the hospital. It was felt that the successful experience in Ohio where a state medical society Committee on Accreditation was established for the purpose of determination and solution of problems, as a result of meetings with representatives of the Joint Commission, might well set a pattern for similar programs in other areas where misunderstandings exist due to certain regulations of the Joint Commission.

Proposed Regionalization Program in Commonwealth of Puerto Rico: No. 40.—Resolution 40 introduced by Dr. C. L. Berio, Puerto Rico, indicated that attempts are being made to organize in the Commonwealth of Puerto Rico a system of medical care known as the Regionalization Program which is in essence the socialization of medicine. The resolution requested that (1) the A. M. A. oppose vigorously such a Regionalization Program in Puerto Rico, unless it be clearly and explicitly shown that such a program will deal with the reorganization and integration of the government facilities for the care of the indigent population only, without any attempt whatsoever to establish a global, socialized system of government medicine; (2) the Rockefeller Foundation be requested to withdraw financial and technical support for such a program unless its objectives are clearly redefined and publicly stated along the lines set forth above, and (3) a copy of this resolution be sent to the appropriate agencies.

The Reference Committee on Miscellaneous Business felt that the regionalization plan represented an experiment initiated by government to control the practice of medicine and will result, in effect, in the socialization of medicine in Puerto Rico. The committee was wholeheartedly in favor of the resolution and recommended that it be adopted.

Medical Journal Advertising: No. 42.—Dr. Donald A. Charnock for the California Medical Association introduced a resolution to the effect that advertising in medical journals must adequately and properly reflect for the benefit of physician readers the true substance, use, therapeutic advantages, and necessary precautions in using the product advertised, and advertising safeguards should be maintained.

The Reference Committee on Miscellaneous Business was in agreement with the principle of the resolution, but recommended the adoption of amendments requesting that the Board of Trustees continue its leadership in maintaining proper advertising safeguards in its own publications, and that appropriate A. M. A. councils assist constituent state and component county medical societies to the end that physicians reading the publications of these societies may be confident that all advertising printed in these journals has passed a fair but rigid examination by competent authorities.

A. M. A. Washington Office: No. 43.—A resolution was introduced by Dr. Frank A. MacDonald, California, requesting that the Board of Trustees (1) immediately survey and re-evaluate the functions and effectiveness of its Washington Office in the light of present-day needs of the government, public and medical profession alike for effective liaison between government and medicine on all matters affecting the public's health, and adequate, prompt and accurate transmittal to the A. M. A. membership of information on all current public issues in which the physician has a direct interest, and (2) implement, as rapidly as possible, all changes and additions that its survey discloses are desirable to achieve the basic purpose of the resolution; namely, effective public and government relations.

The Reference Committee on Reports of Board of Trustees and Secretary after long and serious consideration, agreed that there is a need for reevaluation of the over-all legislative program of the A. M. A.; that changes in the regional set-up of the Committee on Legislation may be necessary; and that a re-definition of the respective duties of the Washington Office and the Chicago headquarters is indicated. The consensus expressed at the committee hearing was that there is a need for a broad and integrated program; that more strengthening of efforts is required; and that there must necessarily be complete cooperation and understanding between the Washington Office and the headquarters office of the Association.

The committee recommended approval of the resolution, with an amendment to section (1) to indicate that the survey and the reevaluation include not only the Washington Office but the over-all A. M. A. legislative system.

Basic Medical Rights of American Citizens: No. 44.—A resolution was introduced by Dr. Donald A. Charnock, California, calling attention to the fact that in the social trend toward organized programs for the purpose of obtaining protection against the unexpected costs of illness, various agencies now act as third parties for the purpose of organizing and managing such programs, thus interposing themselves between physicians and patients, and urging approval of several principles.

The Reference Committee on Insurance and Medical Service, while attempting to keep within the intent of the resolution, recommended the adoption of a substitute resolution that the House of Delegates approve the following principles:

"We, as physicians, cognizant that the American citizen enjoys certain basic rights as his heritage, and that these rights extend to the citizen in his position as a patient, do hereby recognize these basic medical rights:

"1. He should have the right to employ the physician of his choice and should be free to terminate the professional relationship at will, without bureaucratic or governmental domination; and

"2. He should have the right to know that his physician is responsible for all decisions regarding the extent of his medical care, and that these decisions are not dictated, restricted, or controlled by any third party."

The committee further recommended that the Board of Trustees and its representatives publicize these principles as the basis for participation in any program of medical care.

Tax Deduction for Tuition Costs of Higher Education: No. 45.—A resolution was introduced by Dr. Donald A. Charnock, California, requesting that the A. M. A. legislative committee and the members of the Congress be urged to take steps to initiate, or to have introduced into the Congress, legislation which would have as its object the allowance of all items incurred in the maintenance of a student in a recognized college or university for tuition or fees as deductible items in the computation of gross income for federal income tax purposes.

The Reference Committee on Legislation and Public Relations, although in sympathy with the sentiments expressed in the resolution, recommended that it be referred to the Committee on Legislation for study along with the numerous other income tax bills now before that Committee.

Nurse Training Program: No. 46.—Dr. Donald A. Charnock, California, introduced a resolution requesting the A. M. A. to initiate continuing discussions with representatives of the American Nurses Association, the National League of Nursing, the American Hospital Association, and all other interested groups, to resolve the inadequacies in quality and quantity of nurse training, and to disseminate the results of such discussion to the medical profession through available media.

The Reference Committee on Medical Education and Hospitals recommended the adoption of a substitute resolution to the effect that the A. M. A. initiate continuing discussions with the groups as listed, to improve the quality and quantity of nurse training.

Indigent Care: No. 47.—Dr. Donald A. Charnock, California, introduced a resolution to the effect that recent acts of the U. S. Congress and several state legislatures have brought on an initial form of government-controlled medicine which is bureaucratic, arbitrary, and subject to governmental whim and mismanagement, is contrary to the best interests of the health of the elderly people of this nation. The resolution requested (1) that the Board of Trustees set up a specially designated committee to study, anticipate, educate, and, in the very best interests of the people, prepare for similar legislation that will surely be presented in the not-too-distant future to our state lawmakers; and (2) that the committee be empowdered to engage the services of public relations experts and any others whose special aptitudes and qualifications might make their services of value; and (3) that the House authorize this committee, subject to approval by the Board of Trustees, to spend any reasonable sums to further this public relations and legislative program.

The Reference Committee on Legislation and Public Relations approved the resolution in principle and recommended referral to the Board of Trustees for study and implementation.

Special Division of the A. M. A.: No. 48.—Dr. Donald A. Charnock, California, introduced a resolution pointing out that there continues to be increasing third party intervention, governmental and otherwise, between physician and patient to the detriment of good medical practice, and recommending that an entirely new special division of the A. M. A. be established and staffed with skilled, highly trained individuals. The functions of this division would be (*a*) to plan and execute a long-range program of preserving the present system of medical practice and the rights of the individual physician to practice medicine in the manner of his choice; (*b*) to formulate further plans to meet the medical needs of the American people under the voluntary free enterprise system; and (*c*) to offer positive advice and assistance to state and local societies as to courses of action to follow as specific threats to voluntary medical care arise in their areas.

The Reference Committee on Miscellaneous Business agreed wholeheartedly with the principle of the resolution to establish a long-range planning group. However, inasmuch as there are two committees at the present time working in this general field, the committee was unable to decide whether or not the long-range objectives of the resolution were being carried out by these two committees. It suggested therefore an amendment requesting the Board of Trustees to explore the desirability of establishing an entirely new special division of the American Medical Association with functions as outlined above.

Radiation Hazard: No. 49.—Dr. Donald A. Charnock, California, introduced a resolution requesting the Board of Trustees to set up an appropriate committee or commission of experts to (1) investigate radiation hazard from all sources; (2) evaluate the statements that are currently being made; and (3) report their findings with all possible dispatch to the A. M. A. and to the American people.

The Reference Committee on Hygiene, Public Health, and Industrial Health was in agreement with the desirability of establishing of a committee or commission of experts to consider the problem of radiation hazards from all sources. It noted, however, that such a committee, to be known as the Committee on Atomic Medicine and Ionizing Radiation, had been proposed by the Board of Trustees. (See THE JOURNAL, May 17, pages 343-345, and action of reference committee, page 56.) The committee therefore felt that the adoption of this resolution was unnecessary, and it recommended that no action be taken.

Guide for Judgment of Third Party Plans: No. 50.—Dr. B. E. Montgomery, Illinois, introduced a resolution outlining a guide, based on "The Principles of Medical Ethics and Opinions and Reports of the Judicial Council," June 7, 1958, to serve as a standard of what is unethical conduct in the association of a physician with a third party plan.

The Reference Committee on Insurance and Medical Service believed it would be unwise to act hastily on any statement of medical ethics, and therefore recommended that the resolution be referred to the Judicial Council.

Korean Children: No. 51.—Dr. E. G. Chuinard, Oregon, introduced a resolution requesting that the A. M. A. (1) declare its grave concern over the health of Korean children, the adoptive families and communities in which they will live, resulting from the admission into the United States under Section 6, Public Law 85-316, of Korean children suspected of or known to be infected with severe communicable diseases, including pulmonary tuberculosis, and (2) petition the Congress to amend this Section of the law so as to control, in the interest of the public health and welfare, the admission of children with severe communicable diseases into the United States.

The Reference Committee on Legislation and Public Relations felt that the American people should be highly commended for opening their homes to Korean orphans and for adopting these children. It hoped that the individuals who have undertaken the task of transporting the unfortunate children to their new homes will be able to continue their wonderful work. The committee was in favor of the resolution and urged its approval.

Freedom of Choice: No. 52.—Dr. Wilkie D. Hoover, Oklahoma, introduced a resolution indicating that the A. M. A. should not accept any system of government-sponsored practice of medicine which does not provide the following principles:

1. Freedom by the patient to consult the physician of his choice;
2. Freedom by the physician to choose those whom he will serve;
3. Freedom by the physician to practice his calling in accordance with the recognized code of medical ethics;
4. Freedom by the physician to care for his patients in accordance with established scientific principles, not subject to interference by a third party;
5. Freedom by the physician to practice his profession on a fee-for-service basis;
6. Freedom by the physician to collect directly from the patient a portion of the fee for each service performed;
7. Freedom by the physician to practice such a system of government-sponsored practice of medicine under terms of a written contract between the government and the various state medical associations, such contract to be of limited duration and renewable by mutual agreement of the contracting parties; and
8. Freedom by the state medical associations to have professional representation at the policy-determining level of such a proposed system.

The Reference Committee on Insurance and Medical Service concurred in a number of the principles set forth in the resolution, but because the subject matter is being considered by the Commission on Medical Care Plans, it felt that no action should be taken until the House received the report of the Commission. It therefore recommended that the resolution be not adopted.

Attendance of Immediate Past-President at Meetings of Board of Trustees: No. 53.—Dr. James P. Hammond, Vermont, introduced a resolution stating that the President of the A. M. A. has, by virtue of the attainment of that office, demonstrated his outstanding ability and qualifications as a physician and medical statesman, and recommending that the Bylaws be amended to effect the inclusion of the immediate Past-President at meetings of the Board of Trustees.

The Reference Committee on Amendments to the Constitution and Bylaws agreed that the knowledge and ability of the immediate Past-President should be utilized by the Association. It was of the opinion, however, that this end is accomplished by Chapter XI, Section 2(C) of the Bylaws, which makes the immediate Past-President an ex officio member of the Council on Medical Service. The committee therefore recommended that the resolution be not approved.

Licensure by Reciprocity: No. 54.—A resolution introduced by Dr. Walter C. Bornemeier, Illinois, urged that the A. M. A. stimulate suitable legislation on a national level so that physicians and surgeons, licensed by examination in Illinois, qualify for licensure in all states which recognize the principles of reciprocity.

The Reference Committee on Medical Education and Hospitals recommended the adoption of a substitute resolution that the Board of Trustees be directed to take appropriate steps for the consummation of a study of the problem pertaining to licensure by reciprocity, and that it consult with the Federation of State Medical Boards in an attempt to find a satisfactory solution to this problem.

Compulsory Assessments and Audits by Hospitals: No. 55.—Dr. Walter C. Bornemeier, Illinois, introduced a resolution condemning the practice of individual hospitals who have continued (1) to make compulsory assessments of members of the medical staff for building funds, and (2) to require audits of staff members' financial records as a requisite for continued staff appointments.

The Reference Committee on Medical Education and Hospitals stated that the resolution reaffirms a position taken previously by the A. M. A. and recommended its approval.

Federal Food and Drug Administration: No. 57.—Dr. Wendell C. Stover, Indiana, introduced a resolution commending the Federal Food and Drug Administration for its untiring efforts in behalf of the public and the profession and for the meritorious service it has performed in protecting the public from objectionable and harmful practices in the production and sale of foods, drugs, medical devices, and cosmetics. The resolution also pledged the fullest cooperation of the A. M. A. in furthering the intent and purposes of the Federal Food and Drug Law, and recommended to all states that they review their state food and drug laws with the intent of strengthening their own laws in such a way as to offer maximum protection to the public and assistance to the Federal Food and Drug Administration.

The Reference Committee on Hygiene, Public Health, and Industrial Health agreed with the resolution and recommended its adoption.

Voluntary Health Agencies: No. 58, 59, and 61.—Resolutions relating to the voluntary health agencies were introduced by Dr. Samuel J. McClendon, California (No. 58), Dr. F. M. Forster, Section on Nervous and Mental Diseases (No. 59), and the Alabama Delegation (No. 61).

The Reference Committee on Hygiene, Public Health, and Industrial Health recommended the adoption of a substitute resolution requesting the Board of Trustees to arrange a top-level conference with the voluntary health agencies, the United Fund, the American Medical Research Foundation, and other parties interested in the raising of funds for health causes, with the view of resolving difficulties that have arisen since the development of the concept of united community effort.

The House of Delegates, after much discussion on the floor, adopted the following statement as a substitute for the Reference Committee report:

(1) That the House of Delegates reiterate its commendation and approval of the principle of voluntary health agencies.

(2) That it is the firm belief of the American Medical Association that these agencies should be free to conduct their own programs of research, public and professional education, and fund raising in their particular spheres of interest.

(3) That the House of Delegates respectfully requests that the American Medical Research Foundation take no action which would endanger the constructive activities of the national voluntary health agencies.

(4) That the Board of Trustees continue actively in studies of these perplexing problems, looking forward to their ultimate solution.

Use of Official Stamp: No. 62.—Dr. William Weston Jr., South Carolina, introduced a resolution requesting the A. M. A. headquarters office to use the South Carolina official stamp on A. M. A. membership cards of bona fide members of the South Carolina Medical Association, who would be members in good standing at the time of the acknowledgment of their membership in the A. M. A.

The Reference Committee on Reports of Board of Trustees and Secretary recommended that the resolution be referred to the Executive Vice-President without comment, for such action as is deemed feasible and advisable.

Use of Alphabet by A. M. A. Councils and Committees: No. 62A.—Dr. Harry Arnold Jr. introduced a resolution for the Alaska, Hawaii, Puerto Rico, and Isthmian Canal Zone delegations requesting that the House of Delegates remind the A. M. A. councils and committees that an alphabetical sequence is to be followed in listing the constituent medical societies in tabulations and reports.

The House of Delegates unanimously adopted this resolution.

Extension of Draft Act: No. 63.—Dr. Donovan F. Ward for the Iowa delegation introduced a resolution relating to the absence of a provision in the present act for an equitable call-up of physicians to support a rapid expansion in the event of an emergency.

The Reference Committee on Legislation and Public Relations recommended the adoption of a substitute resolution instructing the Board of Trustees through the appropriate councils and committees of the Association to effect a liaison with the Department of Defense for the purpose of effecting a more equitable call-up of physicians in time of a national emergency.

Consultation with Interested Sections in Special Publications of A. M. A.: No. 64.—Dr. H. Relton McCarroll for the Section on Orthopedic Surgery introduced a resolution requesting that a revision be made of the "Guide to the Evaluation of Permanent Impairment," and that such revision, together with all future A. M. A. publications which touch on the interests of individual Sections, be made with the cooperation of the interested Section or Sections through the appointment by them of committees whose function shall be to assist in the guidance and editing of such publications.

The Reference Committee on Hygiene, Public Health, and Industrial Health, after lengthy discussion and careful consideration of the resolution, recommended that the problems presented by this resolution can be most successfully resolved by referral of it to the Board of Trustees.

Psychiatric Patients in General Hospitals: No. 65.—Dr. F. M. Forster, Section on Nervous and Mental Diseases, introduced a resolution requesting the A. M. A. representatives on the Joint Commission on Accreditation of Hospitals to call to the attention of the Commission the recommendation that general hospitals, wherever feasible, be encouraged to permit the hospitalization of suitable psychiatric patients.

The Reference Committee on Medical Education and Hospitals was in accord with the resolution and recommended its implementation.

MEDICINE AND THE LAW

On June 25, during the annual meeting in San Francisco, the film entitled "The Man Who Didn't Walk" had its première showing. This film is the third in a series of medicolegal films which is being sponsored by the Wm. S. Merrell Company in cooperation with the American Medical Association and the American Bar Association. The brief speeches preceding the showing of the film are presented below.

THE MAN WHO DIDN'T WALK

Introductory Comments by Dr. Hugh H. Hussey on Behalf of the American Medical Association

It is indeed a pleasure for me, as a representative of the Board of Trustees of the American Medical Association, to present a few brief remarks concerning this important medicolegal film. It concerns traumatic neurosis—one of the most controversial subjects in personal injury litigation and workmen's compensation cases. Mr. Bronson will tell you about the legal intricacies involved, so I will allude only to some of the medical aspects of the problem.

For the benefit of the nonmedical members of the audience, a trauma is anything, either physical or mental, that causes injury to the individual. Although we usually think of trauma as a physical force, such as a blow, there are other forms of trauma—thermal trauma, for example, a burn or frostbite; chemical trauma, contact of acid with the skin; and psychic trauma.

In general, a neurosis can be likened to an emotional or a mental turmoil that induces greater than normal attention to bodily manifestation of illness or greater than normal response to injury.

The combination of words into the term "traumatic neurosis" first occurred about 100 years ago. It was used to designate causes in which neither gross organic lesions nor true psychoneurotic mechanisms could be demonstrated. As used today, the term has many meanings. However, the condition it is intended most often to describe is chiefly the result of conflicting forces or drives within the personality structure of the individual, a reaction not specifically related to the type of injury that caused it.

Persons with genuine traumatic neuroses, for the most part, are those who have previously been apparently well adjusted and who, after an injury—sometimes a relatively mild or even trifling injury—manifest a set of symptoms that involve all aspects of their psychic living. The violence and nature of the accident or trauma merely color the intensity of the neurosis rather than determine its essential character.

It is easy to see, therefore, why an attorney who has a case involving this issue is dependent on the physician for an impartial evaluation of the matter. It is also easy to see why the physician who is called upon to determine the existence of the neurosis and its possible relationship to the trauma has an extremely difficult task.

It is, in fact, the nature of the condition that has led to malingering and to charges of malingering. Many believe that too frequently claims-conscious people purposely feign illness and try to reproduce nonexistent signs and symptoms in order to deceive, to evade responsibility, or to derive gain. Others believe that unalloyed malingering does not exist, that simulation in these cases is always a symptom of some underlying psychic disturbance, while still others apply the term to practically all compensation cases in which organic damage cannot be demonstrated.

When a court or commission is asked to find that a traumatic neurosis does or does not exist, it must have the best possible evidence before it. The obligation of attorneys and physicians is increased by virtue of the very nature of the condition encompassed within the meaning of the term "traumatic neuroses." Neither court nor commission nor the administration of justice will be well served unless both physician and lawyer ethically collaborate to obtain and present the best evidence.

Obviously, the attorney wants and must have the cooperation of the physician with respect to the identification of traumatic neurosis and proof of its existence or nonexistence in any given case. The physician, in keeping with the scientific disciplines of his profession, want to and must cooperate with the attorney so that the knowledge of medical science can be properly applied in the forum of justice.

In addition to my personal relations with members of the legal profession, I have had the good fortune to be a representative on the American Medical Association–American Bar Association Liaison Committee. That committee has as its basic objective the improvement of doctor-lawyer relationships. Today, the House of Delegates approved a national interprofessional code prepared by the committee. That code will also be submitted to the A. B. A.'s House of Delegates this summer for consideration and, I hope, adoption.

This film, the other films in the Medicine and the Law series, and the codes of interprofessional conduct are manifestations of the sincere efforts to im-

prove the administration of justice. With patience and with continued collaboration between the two professions, our interprofessional problems should eventually be substantially eliminated.

On behalf of the American Medical Association—all thanks to the Wm. S. Merrell Company for underwriting the cost of these films. The company's foresight and generosity have been a great aid in improving medicolegal relations.

It remains, however, for each of us personally to apply the principles we have learned or agreed to so that the individual we serve—whether he be patient or client—is benefited by our mutual cooperation to protect his inalienable rights.

Comments by E. D. Bronson, Esq., on Behalf of the American Bar Association

It is a pleasure to extend to the American Medical Association greetings of the American Bar Association. Mr. Charles Rhyne of Washington, D. C., has asked me to express his disappointment in being unable personally to appear and, as president of the association, to extend his greetings and good wishes. As his proxy I am honored indeed on behalf of the members of the A. B. A., if not for all of the lawyers in this country, to salute you and to solicit your friendly and patient understanding of the problems of the legal profession where they parallel or cross the interests of the doctors and also to assure you of our constant endeavor to work with you toward understanding and toward solution of those problems.

The subject that was assigned is the cooperation between doctors and lawyers with special reference to traumatic neurosis. The film that you are about to see is a vivid portrayal of the problem that lies at the core of these cases. For a number of years I have represented the corporate insurers of these risks in the trial courts. Their attorneys undoubtedly look with a more jaundiced eye than you upon these claims of traumatic neurosis. So it is easy to make the confession that I am left today in much the same degree of doubt and uncertainty about the reliability of this diagnosis as with the first case that came to my attention, and frequently it would appear that the doctors suffer the same uncertainty, whether expressed or not.

What we are talking about now is the case where the traumatic neurosis is claimed in court, coupled with demands for heavy money damages for a radical and permanent condition. We are not talking about the case where litigation is not involved. Apparently all of the students of the subject have agreed that the addition of the profit motive, with or without the compulsive aspects, adds a grave and illusive factor, sometimes referred to as "compensation neurosis."

The lawyer is prone to use examples from his own experience. One case that dramatically presented the diagnostic problem was a trial here in San Francisco about 1934 or 1935. A lady was in an automobile accident and claimed that total bilateral blindness resulted. As she sat in the witness chair staring with sightless eyes she made a truly shocking picture. Her own doctor, a respected and highly competent eye specialist, Dr. McCool, testified identically with the eye specialist that we called, the late Dr. Hans Barkan, the head of that department at the University of Stanford Hospital. They found, first, that there was nothing in the manner of the automobile accident or the physical injury suffered to account for any damage to sight. Second, there was nothing found in the eyes or the nerve tracts, and, finally, they both concluded that it was a true case of hysterical blindness.

In the midst of the trial we procured for the defense a neurological examination by Dr. Howard Naffziger of the University of California Hospital. He testified that in the course of an hour or two of examination three incidents occurred in the lady's movements and the use of her hands that were completely inconsistent with blindness. One incident could be coincidence, but not three. She did have vision.

Traumatic neurosis is said to be the most common manifestation of hysteria, and serious error is inevitable unless the diagnosis is established by most careful study.

All texts speak of frequent coincidence of hysteria and malingering—sometimes impossible to separate. One text states: "The borderline between deliberate exaggeration and unconscious hysteria is often invisible to both patient and doctor." Another says: "Doctors are one of the greatest causative factors leading to traumatic neurosis . . . instillation of doubt or fear in patient's mind with limited data or insufficient time and study—dangerous."

Doctors can be sympathetic but need not mollycoddle the weakling patient. In litigated cases, I argue for the critical approach—whether you examine for an insurance company or are treating your "pet" patient.

Suppose the patient is a self-centered, ingrown type, antagonistic, with a sense of inferiority or burdened with economic problems or an intolerable family life—a typical pattern for development of a neurosis. Soon the patient goes from petulant complaints to honestly fooling himself.

On the other hand, the patient may be smart, well-trained, emotionally balanced, but with claims of persistent ills, into and past the convalescent stage. That, it seems, is a different picture, especially where a damage claim is pending.

In any of these cases, it seems to me that doctors should not accept everything as true merely because the patient says he has an ache, a pain, a spasm, a tremor, or an area of anesthesia. A careful and extended study is indicated. Differential procedures should be used and tests made for malingering so that a true analysis and conclusion is reached.

That, gentlemen, is an area for cooperation between us.

MEDICAL NEWS

ARKANSAS

Grant for Training of Researchers.—The pathology department at the University of Arkansas School of Medicine, Little Rock, has received a grant of $107,200 from the National Institutes of Health, to be used over the next five years on research projects directed by Dr. Hans G. Schlumberger, head of the department. Dr. Schlumberger said the grant money will be used to augment training of research personnel. The grant became effective July 1 and totals $32,000 for the first year. Thereafter, it will be $18,800 annually for four years.

CALIFORNIA

Ground Broken for Memorial Research Laboratory.—Ground-breaking ceremonies were held July 23 for the Bruce Lyon Memorial Research Laboratory at Children's Hospital of the East Bay in Oakland. The laboratory, scheduled to be completed by Dec. 31, will cover about 8,000 square feet and will be built on a portion of the present hospital parking lot. The L-shaped building will cost about $262,000 and will house 25 rooms for various research purposes. Mr. and Mrs. Harvey B. Lyon and their sons, Dr. Richards P. Lyon and Dr. Harvey B. Lyon Jr., gave $100,000 to establish the laboratory in memory of their son and brother, Bruce, who was killed in World War II. A grant of $75,000 was made in November, 1957, by the National Institutes of Health of the Department of Health, Education and Welfare. Dr. Irvine McQuarrie is director of research at the hospital.

KANSAS

Symposium on Infectious Diseases.—The second annual Symposium on Infectious Diseases, jointly sponsored by the American Academy of General Practice, Kansas University Medical Center, and Lederle Laboratories, will be held Sept. 19, at Battenfeld Auditorium on the medical center campus, Kansas City, Kan. The program will open with a 90-minute discussion of staphylococcal infections. Dr. Robert I. Wise, associate professor of medicine at Jefferson Medical College, Philadelphia, will discuss "Modern Methods of Diagnosis." Dr. William M. M. Kirby, professor of medicine at the University of Washington, Seattle, will present "New Concepts in Epidemiology." Dr. Harry F. Dowling, head, department of internal medicine, University of Illinois, Chicago, will discuss the "Control and Treatment" of staphylococcal infections. The three speakers will meet for a one-hour panel discussion moderated by Dr. Robert W. Weber, University of Kansas. At the evening session the following three speakers are scheduled: Dr. Richard Cannon Eley, assistant clinical professor of pediatrics in the Children's Hospital at Harvard, Boston, presenting "The Role of Steroids in Contagious Diseases"; Dr. Thomas G. Ward, associate director of Lobund Institute at the University of Notre Dame, "A Review of the New Respiratory Vaccines"; Dr. Thomas H. Haight, assistant professor of medicine, preventive medicine and public health, University of Oklahoma School of Medicine, Oklahoma City, "Diagnosis and Control of Acute Glomeruloneephritis." After the symposium a reception will be held at the Hotel Muehlebach. For information write the American Academy of General Practice, Volker Boulevard at Brookside, Kansas City 12, Mo.

LOUISIANA

Graduate Medical Assembly in Lake Charles.—The 12th annual meeting of the Southwest Louisiana Graduate Medical Assembly will be held at the Majestic Hotel in Lake Charles Sept. 12-13. Speakers will include Drs. William A. Sodeman, Philadelphia; Howard R. Mahorner, Isadore Dyer, Rudolph J. Muelling, and Richard E. L. Fowler, New Orleans; and Thomas H. Blake, James D. Hardy, and John R. Snavely, Jackson, Miss. Dr. David Buttross Jr., 1620 Foster St., Lake Charles, La., is the assembly director. The assembly has the approval of the American Academy of General Practice for postgraduate credits.

MICHIGAN

State Medical Meeting in Detroit.—The 93rd annual session of the Michigan State Medical Society will be held Sept. 30-Oct. 3 at the Sheraton–Cadillac Hotel, Detroit. The president's annual address will be given during the "officers night" proceedings by Dr. George W. Slagle, Battle Creek. Two panel discussions, "Ulcerative Colitis and Ileitis in Children" and "Malabsorption Syndrome and Diarrhea," will be moderated by Drs. James L. Wilson, Ann Arbor, and David J. Sandweiss, Detroit, respectively. The Andrew P. Biddle Lecture, "Functional Disorders of the Digestive Tract," will be given by Dr. Henry L. Bockus, Philadelphia. Papers at the general sessions include the following by Canadian participants:

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

The Infected Surgical Wound, Dr. Robert C. Harrison, Edmonton, Alberta.
Ocular Aids in Diagnosis of Metabolic Disease, Dr. Alfred J. Elliot, Toronto, Ontario.
Tympanoplasty, Dr. Joseph A. Sullivan, Toronto.

Scientific exhibits are planned, and the "State Society Night" will be held Oct. 2, 9:30 p. m. For information write Dr. L. Fernald Foster, 606 Townsend St., P. O. Box 539, Lansing, Mich., Secretary.

MONTANA

Annual State Meeting in Billings.—The 80th annual meeting of the Montana State Medical Association will be held Sept. 11-13 at the Shrine Auditorium, Billings. A panel discussion, "A New Look at Alcoholism" will be moderated by William G. Walter, Ph.D., professor of bacteriology, Montana State College, Bozeman. The program includes the following guest speakers: Drs. Ross T. McIntire and Herbert E. Schmitz, Chicago; Arnold S. Jackson, Madison, Wis.; Evan L. Frederickson, Seattle; Harold E. Harris, Cleveland; Claude F. Dixon, Rochester, Minn.; Frederick W. Hoffbauer and Joseph Jorgens, Minneapolis; and Cyril B. Courville, Los Angeles. Dr. John A. Layne, Great Falls, president of the association will present an address the afternoon of Sept. 11. At the annual banquet (7:30 p.m. Sept. 11) Dr. F. J. L. Blasingame, Executive Vice-President, American Medical Association, will present "Reorganization for Service." Technical and educational exhibits and a ladies' program are arranged, and a motion picture, "Hypothyroidism," is scheduled for the morning of Sept. 12. For information write Dr. Theodore R. Vye, Secretary-Treasurer, Montana Medical Association, 412 N. Broadway, Billings.

NEW JERSEY

Death from Tetanus Reported.—The first death from tetanus in a human being in New Jersey in 1958 was reported from Newark recently. The victim was a 22-year old woman who fell and cut her knee on a broken bottle. Six days later, rigidity of the jaw developed and a few days later she died.

Personal.—The Board of Directors of Merck & Co., Inc., has elected Dr. Karl H. Beyer Jr. and Robert G. Denkewalter, Ph.D., as administrative vice-presidents of the Merck Sharp & Dohme Research Laboratories. In the newly created vice-presidential posts, Drs. Beyer and Denkewalter will share over-all administrative responsibility for the organization's research programs.——Dr. Herbert L. Goodman, formerly assistant pathologist at the Bryn Mawr Hospital, Bryn Mawr, Pa., has been appointed pathologist and director of the laboratory at the East Orange General Hospital.

NORTH CAROLINA

Grant for Program of Development.—The Rockefeller Foundation has granted $250,000 to the department of medicine, University of North Carolina School of Medicine, Chapel Hill, for a five-year program of general development. Dr. Charles H. Burnett, chairman of the department, will direct the program, which will be concluded in 1963 and which will consist of three main parts: (1) further development of the general medical clinic in conjunction with the department of preventive medicine; (2) closer liaison and teaching with the basic medical sciences; (3) development of a foreign student exchange program, especially graduate medical students from the South American countries.

Personal.—Dr. Lenox D. Baker, Durham, Duke University orthopedic surgeon and president of the North Carolina Medical Society, has been appointed to the Medical Committee of President Eisenhower's Committee on Employment of the Physically Handicapped.——Dr. Charles H. Burnett, head, department of medicine, University of North Carolina School of Medicine, has been appointed to serve through Sept. 30, 1962, on the National Advisory Arthritis and Metabolic Diseases Council.——Dr. Keith S. Grimson, professor of surgery at the Duke University Medical Center, Durham, was honored by the University of North Dakota Alumni Association June 7, when he received an Alumni Association Distinguished Service Citation. Earlier this year, Dr. Grimson received a 1958 Modern Medicine Distinguished Achievement award from the journal *Modern Medicine*.

OHIO

Dr. Selye to Lecture in Cincinnati.—Dr. Hans Selye, director, Institute of Experimental Medicine and Surgery, University of Montreal, will speak on "The Future of Medicinal Chemistry" at the dedication of The William S. Merrell Company's new Medicinal Chemistry Laboratories, Cincinnati, Sept. 11. An academic lecture has been arranged also by Merrell and the University of Cincinnati College of Medicine. Dr. Selye will lecture on "The Chemical Prevention of Cardiac Necroses" at the Mont Reid Pavilion, Cincinnati General Hospital, 8:00 p. m., Sept. 10.

OKLAHOMA

Colloquy on Advances in Medicine.—The second Oklahoma Colloquy on Advances in Medicine will be held Nov. 12-15 at the University of Oklahoma School of Medicine, Oklahoma City. It will be devoted to "Arthritis and Related Disorders" and is under the joint sponsorship of the department of

medicine, University of Oklahoma, the Division of Postgraduate Education; Geigy Pharmaceuticals; Wyeth Laboratories; The Upjohn Company; Pfizer Laboratories; and Schering Corporation. Twelve investigators will participate and present the results of original work from their laboratories. Among the guest speakers will be: Drs. Alfred Jay Bollet, Detroit; Richard H. Follis Jr., Washington, D. C.; Robert A. Good, Minneapolis; Alexander B. Gutman, New York City; Ralph Heimer, Ph.D., New York City; Charles H. Slocumb, Rochester, Minn.; John H. Talbott, Buffalo, N. Y.; and Morris Ziff, New York City. Registration will be open to all physicians. Information may be obtained from the Division of Postgraduate Education, University of Oklahoma School of Medicine, Oklahoma City, Okla.

TEXAS

General Practice Meeting in San Antonio.—The Texas Academy of General Practice will hold its ninth annual assembly Sept. 21-24 in the Gunter Hotel, San Antonio. A symposium on abdominal pain will include the following:

Abdominal Pain in Children, Dr. Sydney S. Gellis, Boston.
Causes of Abdominal Pain, Dr. Sherman M. Mellinkoff, Los Angeles.
Gastro-Duodenal Ulceration, Dr. Alton Ochsner, New Orleans.

Other participants include Drs. Franklin G. Ebaugh, Denver; Homer B. Field, Blue Island, Ill.; Milton Helpern, New York City; Willis E. Brown, Little Rock, Ark.; John D. Porterfield, Washington, D. C.; and Philip Thorek, Chicago. Mr. Philip R. Overton will present "Legal Problems Confronting Physicians in Everyday Practice" the morning of Sept. 22. For information write the Texas Academy of General Practice, 1905 Lamar, Austin 5, Texas.

VIRGINIA

Dr. Woodward Commended for Safety Crusade.—Dr. Fletcher D. Woodward, of Charlottesville, for many years chairman of a department at the University of Virginia medical school, has been awarded the Allstate Safety Crusade Certificate of Commendation for his leadership in traffic safety. This certificate is given by the Allstate Insurance Companies to carefully selected individuals and groups for outstanding accident prevention efforts. The presentation was made recently in Washington, D. C., during a meeting of the Surgeon General's (Public Health Service) Accident Prevention Advisory Committee, of which Dr. Woodward is a member. Dr. Woodward has been crusading for highway safety since 1948 and since 1935 he has been chairman of the American Medical Association's Committee on Medical Aspects of Automobile Injuries and Deaths. This committee has already published a booklet of advice to the driver and is preparing another book intended as a guide to the physician in determining a person's fitness to drive.

WASHINGTON

Annual State Meeting in Spokane.—The 69th annual convention of the Washington State Medical Association will be held at the Davenport Hotel, Spokane, Sept. 14-17. Five refresher courses will be conducted simultaneously the mornings of Sept. 16 and 17. Scientific films will be shown the morning of Sept. 15. The general scientific sessions include the following papers by out-of-state speakers:

Changing Concepts in the Treatment of Polyps of the Colon and Rectum, Dr. Walter A. Fansler, Minneapolis.
Osteomyelitis—Diagnosis, Treatment and Complications, Dr. Robert A. Murray, Temple, Texas.
Radiographic Signs of Mongoloidism During Early Infancy, Dr. John P. Caffey, New York City.
Aneurysm of the Aorta, Dr. William S. Middleton, Washington, D. C.
Remote Pain as an Aid in the Diagnosis of Abdominal Disease, Dr. Lucian A. Smith, Rochester, Minn.
Renal Artery Disease in Hypertension, Dr. Eugene F. Poutasse, Cleveland.

Scientific and technical exhibits are planned. For information write Dr. Frederick A. Tucker, Secretary-Treasurer, Washington State Medical Association, 1309 Seventh Ave., Seattle 1.

WEST VIRGINIA

Symposium on Gastroenterology in Huntington.—Sponsored by the Cabell County Medical Society, a symposium on gastroenterology will be held Sept. 11 at the Hotel Prichard, Huntington. Panel discussions with guest moderators are planned as follows:

Gastrointestinal Bleeding, Dr. Seymour J. Gray, Harvard University, Boston.
Jaundice, Dr. William B. Bean, University of Iowa, Iowa City.
Chronic Diarrhea, Dr. William G. Sauer, Mayo Clinic, Rochester, Minn.

Other guest participants include Dr. Philip J. Hodes, University of Pennsylvania, Philadelphia, and Dr. Stanley O. Hoerr, Cleveland Clinic, Cleveland. Exhibits are planned, and at the conclusion of the dinner hour a question-and-answer period will be conducted by Dr. Bean. For information write Dr. Rowland H. Burns, 1109 Sixth Ave., Huntington, W. Va.

Name Assistant Dean.—Dr. Clark K. Sleeth, of Morgantown, a member of the teaching staff of West Virginia University School of Medicine for the past 23 years, has been named assistant dean of the school and will assist Dean Edward J. Van Liere in executing policies established by the faculty. Dr. Sleeth will continue as an associate professor of Medicine and will serve as a physician at the University Health Service.

WISCONSIN

Conference on Athletic Injuries.—A Conference on Athletic Injuries will be held in Milwaukee Nov. 7. High school coaches and administrators, athletic officials, physical education instructors, and physicians are invited. The faculty includes Dr. Stephen E. Reid, of Evanston, Ill., team physician for Northwestern University athletic teams, and Drs. Donald W. McCormick, Fond du Lac; Edgar S. Gordon, W. D. Stovall and Frank D. Bernard, Madison; Lloyd M. Simonson, Sheboygan; Francis J. Millen, Milwaukee, and Robert Krohn, of Black River Falls. Six hours of category II credit will be given for attendance to American Academy of General Practice members. Sponsor of the conference in the State Medical Society's Charitable, Educational and Scientific Foundation, cooperating with the Wisconsin State High School Coaches' Association, the W. I. A. A., State Board of Health, Wisconsin Academy of General Practice, State Department of Public Instruction, Wisconsin Orthopedic Society, the Wisconsin Heart Association, and the medical society's Division on School Health. There will be no charge to registrants. For information write the State Medical Society of Wisconsin, 330 E. Lakeside St., Madison 5, Wis.

GENERAL

Nation's Oldest Essay Contest.—The trustees of America's oldest medical essay competition, the Caleb Fiske Prize of the Rhode Island Medical Society, announce as the subject for this year's dissertation "Bronchogenic Carcinoma—Predisposing Causes." The dissertation must be typewritten, double spaced, and should not exceed 10,000 words. A cash prize of $300 is offered. Essays must be submitted by Dec. 31. For information write to the Secretary, Caleb Fiske Fund, Rhode Island Medical Society, 106 Francis St., Providence 3, R. I.

Seminar Cruise to the West Indies.—Ohio State University will sponsor a West Indies–South America seminar cruise, sailing from Wilmington, N. C., Nov. 11 aboard the M/S Stockholm. The 15-day cruise will include visits to Havana, San Blas Islands, Cristobal, Curacao, La Guaira, St. Thomas, and San Juan. Over 30 topics are included in the proposed medical program, and the seminar constitutes 30 hours acceptable category I postgraduate requirements of the American Academy of General Practice. Dr. Noel P. Hudson, assistant dean of postgraduate medical education, is the program chairman. For information write the Ohio State University College of Medicine, Postgraduate Education, Columbus, Ohio.

Fracture Association Meeting.—The 19th annual meeting of the American Fracture Association will be held Sept. 30-Oct. 2 at the Hotel Skirvin, Oklahoma City, Okla. The meeting will be accepted for category II credit by the American Academy of General Practice, and the preceding postgraduate course, Sept. 29, is acceptable for category I. Twenty-five papers are scheduled on the regular program. Round-table discussions, scheduled for noon, Sept. 30, will include the following moderators: Drs. Duncan C. McKeever, Houston, Texas, president of the association; Charles M. Swindler, Ogden, Utah; Harold J. Meier, Coldwater, Mich.; J. Otto Lottes, St. Louis; and Walter T. Henderson, Richlands, Va. Exhibits and discussion periods are planned. A "Chuck-Wagon Dinner" will be held at "Frontier City," Sept. 30. For information write Dr. Hermann W. Wellmerling, 610 Griesheim Building, Bloomington, Ill.

Decline in Number of Marriages.—About 1,420,000 marriages will be performed in the United States this year, the statisticians of the Metropolitan Life Insurance Company estimate. In the first quarter of 1958 marriages were 11.5% fewer than in the corresponding period of 1957; if the trend continues, 1958 will record the smallest number of marriages in about two decades, the statisticians report. The slump in marriages began in the last four months of 1957. Up through August of last year, marriages in the U. S. totaled only 1% below the number in the like period of the year before. Since August, marriages in every region of the country have been substantially fewer than in the comparable months of 1956. Only eight states recorded more marriages in the year 1957 than in 1956. Moderate increases were reported in Oklahoma, Utah, Indiana, Florida, and West Virginia. The largest gains, somewhat over 5%, occurred in Colorado, Nevada, and California.

Announce Awards for Research in Aging.—The Ciba Foundation, London, England, has announced that a panel has considered 62 papers from 19 countries for the Ciba Foundation's awards for 1958 for research relevant to the problems of aging, and the following awards have been made (the names of leading authors only are given) to U. S. authors:

Dr. Robert J. Boucek, Miami, for "The effect of tissue age and sex upon the metabolism of rat collagen," £300.

Laurence O. Pilgeram, Ph.D., Minneapolis, for "Deficiencies in the lipoprotein lipase system in atherosclerosis," £200.

Harry Sobel, Ph.D., Los Angeles, for "(a) Urinary steroids and the hexosamine-collagen ratio of dermal punches; (b) The influence of age upon the hexosamine collagen ration of dermal biopsies from men; (c) Lean-body-mass creatinine-coefficient deficit and urinary steroids," £200.

The awards are being offered for a fifth and final time in 1959, the closing date for entries being Jan. 10, 1959, and information may be obtained from the Ciba Foundation, 41 Portland Place, London, W. 1, England.

Fellowship for Study of Nutrition.—A research fellowship of one million francs is awarded every year by the French Nestlé Company to a physician who wishes to specialize in the field of nutrition. For the year 1958-1959 the panel of judges awarded the fellowship to Dr. André Frederich, Lyons. The 1959-1960 fellowship will be awarded in the spring 1959. Applicants are requested to send to the International Children's Centre, Chateau de Longchamp, Bois de Boulogne, Paris XVI°: (a) a curriculum vitae setting forth their work on the biological and social problems connected with feeding or nutrition of infants and children; (b) an introduction letter from one of their Masters; (c) a description of the studies they wish to pursue. Applicants must have a sufficient command of the French language. At the end of the fellowship period, the fellow will be expected to send to the International Children's Centre a scientific study on the subject which they will have studied during the year.

Society News.—The officers of the **American Proctologic Society** for the year 1958-1959 are: president, Dr. Karl Zimmerman, Pittsburgh; president-elect, Dr. Hyrum R. Reichmann, Salt Lake City; vice-president, Dr. Patrick H. Hanley, New Orleans; secretary, Dr. Norman D. Nigro, Detroit; and treasurer, Dr. Robert J. Rowe, Dallas, Texas.—The officers of the **American Laryngological Association** for 1958-1959 are: president, Dr. Fred W. Dixon, Cleveland; secretary, Dr. James H. Maxwell, Ann Arbor, Mich.; treasurer, Dr. Francis E. LeJeune, New Orleans; and editor, historian, and librarian, Dr. Edwin N. Broyles, Baltimore. The 80th annual meeting of the association will be held at The Homestead, Hot Springs, Va., March 8-9, 1959.—The **American Electroencephalographic Society** has elected the following officers: president, Dr. Wladimir T. Liberson, Rocky Hill, Conn.; president-elect, Dr. Arthur A. Ward Jr., Seattle; treasurer, Dr. Isadore S. Zfass, Richmond, Va.; and secretary, Dr. Jerome K. Merlis, University Hospital, Baltimore 1.

Announce Donner Fellowship Winners.—The National Academy of Sciences–National Research Council has announced the selection of nine scientists in the U. S. and Canada to be awarded the Donner Fellowship for medical research for the coming academic year. The fellowships were initiated in 1957 through the financial support and interest of the Donner Foundation of Philadelphia, established in 1932 in memory of Joseph Donner by his father, the late William H. Donner, president of Donner Steel Company, of Buffalo, until its sale to Republic Steel Corporation in 1929. Until 1949, the foundation's charitable activities were devoted exclusively against cancer. Since 1949 the foundation has channeled a majority of its funds to three fields: awards to recognized medical groups or institutions for research on the causes of and therapy for the less-understood illnesses and diseases, support for secondary education, and support of projects designed to preserve "our American way of life."

Grants for Research in Nutrition.—Twenty medical and nutritional scientists have been awarded nearly $215,000 in grants-in-aid to continue or start new projects for study in the relationship between nutrition and human health, raising to $5,000,000 the amount distributed among universities and medical schools throughout the U. S., Canada, and Central America by the Nutrition Foundation since its founding 17 years ago. The foundation, organized by food and related manufacturers in December, 1941, has as its basic purpose "the development of a comprehensive program of fundamental research, providing basic information in the science of nutrition; and the support of educational measures that will assist in making the science of nutrition effective in the lives of present and future generations." The four largest grants-in-aid awarded were:

Johns Hopkins University—Drs. David A. Turner and Albert I. Mendeloff to study the fate of dietary fats in animal and human nutrition; $28,000.

University of Toronto—Dr. Charles H. Best to study the lipotropic factors: Choline, betaine, methionins, and inositol; $20,000.

Harvard University—Konrad E. Bloch, Ph.D., to study biological synthesis of unsaturated fatty acids; $15,000.

Washington University—Dr. Carl F. Cori to study the Mechanism of carbohydrate reactions in animal tissue; $14,000.

Meeting of Medical Writers.—The 15th annual meeting of the American Medical Writers' Association will be held at the Hotel Morrison, Chicago, Sept. 26, to be followed by a workshop on medical writing, Sept. 27. Speakers include Drs. John Z. Bowers, Madison, Wis., editor, *Journal of Medical Education*; Charles E. Lyght, Rahway, N. J., director, medical publications, Merck, Sharp & Dohme Research Laboratories; Alton Ochsner, New Orleans, professor of surgery, Tulane University; Austin Smith, Chicago, editor of THE JOURNAL; Karl A. Menninger, Topeka, Kan., chief of staff, Menninger Foundation. The workshop Sept. 27 will be directed by Dr. Jacques P. Gray, visiting lecturer on medical writing of the AMWA assisted by Lois DeBakey, B.A., of Tulane University; Selma DeBakey, B.A., of the Alton Ochsner Medical Foundation, Mildred H. Lysle, M.S., of the Cleveland Clinic Foundation; and Dr. Richard H. Orr, San Francisco, director, Institute for Advancement of Medical Communications. The meeting is open to all persons interested in any phase of medical communications. There is no registration fee for the Sept. 26 meeting; there is a $5 registration fee for the workshop on Sept. 27 for nonmembers. For information write Dr. Harold Swanberg, Secretary, W. C. U. Bldg., Quincy, Ill.

Information Service for Southeast Physicians.—An information service, for physicians in North Carolina, South Carolina, and Virginia, is being launched which will feature a monthly booklet, entitled "What Goes On," which will list all medical meetings, special lectures, postgraduate courses and other events of interest in the three-state area. Distribution will be free to practicing physicians and medical faculty members. Dr. William M. Nicholson, director of postgraduate medical education at the Duke University Medical Center, Durham, N. C., said the booklet will be prepared by the center, in cooperation with medical societies and schools in all three states. Financial sponsorship will come from the Lederle Laboratories Division of the American Cyanamid Co. at Pearl River, N. Y. The "What Goes On" office at Duke also will serve as a "clearing house" for medical activities in the area, Dr. Nicholson noted. Medical organizations will be invited to check with the office before scheduling meetings, to avoid conflict of dates. The office will offer its services to visiting physicians. The first issue of "What Goes On" is tentatively scheduled for November. Other "What Goes On" publications are available for physicians in New England, New York, and Texas under Lederle auspices.

Announce Radiology Research Grants and Fellowships.—On behalf of the James Picker Foundation, the National Academy of Sciences–National Research Council has announced the award of 10 research grants, six fellowships, and one grant for a scholarship in radiological research for the coming academic year. These awards, totaling about $74,000, were made by the foundation on recommendation of the Committee on Radiology of the Academy–Research Council. The Picker Foundation, with the cooperation of the council, initiated its program of research grants and fellowships in 1950 "to foster research and broaden the scope of radiology." Including the present awards, research grants have been made for support of 39 investigations over the eight-year period. These studies were conducted in 25 laboratories in the U. S., four in Canada, and seven institutions abroad. Three scholars in radiological research have been supported in universities in this country. Fellowships have been awarded to 15 young scientists to enable them to advance their preparation for investigative careers; seven were citizens of foreign countries. Six of these studied in this country or Canada and two of the Americans have carried on their research in England and Sweden. Grants in radiological research for 1958-1959 have been made to the three foreign investigators. Fellowships in radiological research for the coming year included one foreign recipient, and a short-term extension has been granted to a foreign fellow.

Awards for Arthritis Fellowships.—The Arthritis and Rheumatism Foundation offers predoctoral, postdoctoral, and senior investigatorship awards in the fundamental sciences related to arthritis for work beginning July 1, 1959. Deadline for applications is Oct. 31. The awards are intended as fellowships to advance the training of young men and women for an investigative or teaching career. (They are not in the nature of a grant-in-aid in support of a research project.) The program provides for three awards:

(1) Predoctoral Fellowships, limited to students who hold a bachelor's degree; each applicant studying for an advanced degree must be acceptable to the individual under whom the work will be done; fellowships are tenable for one year, with prospect of renewal; stipends range from $1,500 to $3,000 a year, depending upon family responsibilities.

(2) Postdoctoral Fellowships, limited to applicants with the degree of doctor of medicine, doctor of philosophy, or their equivalent; fellowships are tenable for one year, with prospect of renewal; stipends range from $4,000 to $6,000 a year.

(3) Senior Investigator Awards, made to candidates holding or eligible for a "faculty rank" (instructor or assistant professor) and who are sponsored by their institution; stipends are from $6,000 to $7,500 a year and are tenable for five years.

A sum of $500 will be paid to cover the laboratory expenses of each postdoctoral fellow and senior investigator. An equal sum will be paid to cover the tuition expenses of each predoctoral fellow. For information write the Medical Director, Arthritis and Rheumatism Foundation, 10 Columbus Circle, New York 19.

Nominations for Medical Faculty Awards.—The Lederle Laboratories Division of the American Cyanamid Company has announced the sixth year of the Lederle Medical Faculty Awards for the academic year 1959-1960. The purpose of the awards is to assist persons working and contemplating careers in the preclinical departments of medical schools. Recipients must hold faculty rank in their medical schools and must have full privileges and responsibilities for teaching and research as regular members in the sponsoring department. Awards are of four types: (1) to supplement the salary of an individual to enable the department to retain him to perform teaching and research functions vital to the department; (2) to bring into the department a new person, not previously supported either by the departmental budget or by research grants; (3) to continue the salary of an individual previously supported on research grants when those grants have terminated; (4) to offer an opportunity to an individual already experienced in teaching and research to devote his entire or major efforts to the teaching of clinical medicine and patient care as integrated with basic medical sciences. Awards will be made directly to a designated medical school in the U. S. or Canada for a

term not exceeding three years. Nominations should be submitted to the Awards Committee through the office of the dean of the medical school and should be endorsed by him and the administrative head of the sponsoring department. Only one candidate from any school will be considered in any given year. The deadline for any nomination is Oct. 31. Address communications to Lederle Medical Faculty Awards, Office of the Secretary, Pearl River, N. Y.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated:

Area	Aug. 9, 1958 Paralytic Type	Aug. 9, 1958 Total Cases	Aug. 10, 1957 Total
New England States			
Maine	..	..	..
New Hampshire	..	..	1
Vermont	1	1	..
Massachusetts	..	1	1
Rhode Island	..	..	..
Connecticut	3	5	..
Middle Atlantic States			
New York	7	10	7
New Jersey	9	16	5
Pennsylvania	1	2	2
East North Central States			
Ohio	3	14	20
Indiana	..	..	8
Illinois	1	5	25
Michigan	23	39	40
Wisconsin	..	2	28
West North Central States			
Minnesota	1	1	6
Iowa	..	5	6
Missouri	4	5	10
North Dakota	..	..	2
South Dakota	..	..	18
Nebraska	..	..	4
Kansas	1	3	6
South Atlantic States			
Delaware	2	3	2
Maryland	..	..	1
District of Columbia	..	..	1
Virginia	5	7	4
West Virginia	3	8	1
North Carolina	..	8	25
South Carolina	..	..	6
Georgia	..	..	4
Florida	4	9	8
East South Central States			
Kentucky	..	..	6
Tennessee	.	8	6
Alabama	3	3	2
Mississippi	..	12	3
West South Central States			
Arkansas	1	3	4
Louisiana	..	1	9
Oklahoma	2	4	7
Texas	11	17	20
Mountain States			
Montana	..	2	1
Idaho	..	..	3
Wyoming	..	..	..
Colorado	..	..	2
New Mexico	1	2	5
Arizona	1	1	3
Utah	..	..	..
Nevada	..	..	..
Pacific States			
Washington	..	..	..
Oregon	..	..	1
California	3	4	33
Territories and Possessions			
Alaska	..	..	..
Hawaii	4	4	..
Puerto Rico	2	2	3
Total	96	207	300

Life Expectancy 20 Years Longer.—The average lifetime of the American people has leveled off in recent years, according to statisticians of the Metropolitan Life Insurance Company. The expectation of life at birth in the United States reached a peak of 69.6 years in 1954, dipped slightly to 69.5 in 1955, and again equaled 69.6 in 1956. Mortality data indicate that the 1957 figure was somewhat lower than in the years immediately preceding, reportedly reflecting the effect of the influenza epidemic in the last quarter of the year. A comparison of 1900 and 1956 life expectancy shows that the 1956 average exceeded by more than 20 years the figure at the turn of the century. According to 1900 mortality conditions, 25% of the newborn would fail to reach their 25th birthday; now only 5% are not likely to attain that age. Similarly, half the children born at the turn of the century could expect to survive to age 58; currently half the newborn can expect to reach age 73. In 1956 the expectation of life at birth for white females was 73.7 years. For girls at age 5, 70.5 years of life remain, about 60 years for those at age 16, and 50 years for those at age 26. For white males, the average length of life in 1956 was 67.3 years, or 6.4 years less than that for females. The difference lessens from 6 years at age 9, to 5 years at age 41, and to 4 years at age 56. The differences between the sexes around 1900 were less than three years at birth and only about one year at age 56. Among nonwhite persons, the expectation of life at birth in 1956 was 61.1 years for males and 65.9 years for females. The average length of life for the nonwhites still lags considerable behind that for the whites. The difference amounts to as much as 7.8 years among females and 6.2 years among males. Since 1900-02 the expectation of life has increased 11.7 years at age 5 and 8.5 years at age 25, the statisticians report. Currently, the expectation of life at age 65 is more than 14 years.

Announce Grants for Bone Research.—Five grants for research on bone formation have been announced by the Easter Seal Research Foundation. A sixth award will make possible a study of the educational needs of cerebral palsied children in the South. The awards, totaling $86,390 and including renewed support to five continuing projects, are from funds raised during the annual Easter Seal campaign. The foundation, established by the National Society for Crippled Children and Adults, supports research dealing with causes and prevention of crippling conditions and improved rehabilitation techniques. Awards went to the following institutions:

Columbia University, College of Physicians and Surgeons, New York City, $15,985—"Basic Mechanisms of Bone Formation," Dr. Charles A. L. Bassett, responsible investigator.

University of North Carolina School of Medicine, Chapel Hill, two grants ($6,785 and $5,865) supporting studies of rickets and other diseases of the bone.

University of Pittsburgh School of Medicine, $5,500—"The Relationships of Embryonic Oxygen Deficiency and the Development of Congenital Malformations," Casimer T. Grabowski, Ph.D., responsible investigator.

Medical College of Virginia, Richmond, $3,450—"The Pathologic Physiology of Fracture Healing as Related to Cerebral Cortical Stimulation," Dr. Earnest B. Carpenter, responsible investigator.

Southern Regional Education Board, Atlanta, Ga., $9,950—"A Study of the Educational Needs of Cerebral Palsied Children in the Southern Region as Related to the Total Medical, Education, and Rehabilitative Program for These Children," William C. Geer, responsible investigator.

Receiving one-year renewal awards were: University of California, Los Angeles ($10,000); University of Mississippi Medical Center, Jackson ($6,000); New York (N. Y.) Medical College ($3,000); Western Reserve University School of Medicine, Cleveland ($8,855); and University of Oklahoma School of Medicine, Oklahoma City.

CORRECTIONS

Dextran Sulfate.—The Foreign Letter item entitled "Alopecia Due to Dextran" in THE JOURNAL, June 21 issue, page 1029, should have been entitled "Alopecia Due to Dextran Sulfate." Dextran, a plasma expander, is not related to dextran sulfate, the anticoagulant, and does not cause alopecia.

Organized Home Care Programs.—In the Government Service item from the Public Health Service in THE JOURNAL, July 26, page 1651, entitled Organized Home Care Programs it was erroneously stated that Dr. William Stadel was Chairman of the Committee on Chronic Illness of the American Medical Association. Dr. Stadel is Chairman of the Committee on Chronic Illness of the American Hospital Association.

EXAMINATIONS AND LICENSURE

EDUCATIONAL COUNCIL FOR FOREIGN MEDICAL GRADUATES, INC.

Educational Council for Foreign Medical Graduates, Inc.: The American medical qualification examination to be given henceforth twice a year for foreign medical graduates. Medical Schools in the United States and Foreign Countries, Sept. 23. Final date for filing application was June 23. Dates for the 1959 examinations have been set for Feb. 17 and Sept. 22. Executive Director, Dr. Dean F. Smiley, 1710 Orrington Ave., Evanston, Illinois.

BOARDS OF MEDICAL EXAMINERS

ALASKA:* On application in Anchorage and Juneau. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

CALIFORNIA: *Written Examination.* Los Angeles, August 18-21; Sacramento, Oct. 20-23. *Oral Examination.* Los Angeles, August 16; San Francisco, November 15. *Oral and Clinical Examination for Foreign Medical School Graduates.* San Francisco, June 15; Los Angeles, August 17; San Francisco, November 16. Sec., Dr. Louis E. Jones, 1020 N Street, Sacramento.

COLORADO: *Endorsement.* Denver, Oct. 14. *Written.* Denver, Dec. 9-10. Exec. Sec., Mrs. Beulah H. Hudgens, 715 Republic Bldg., Denver 2.

DISTRICT OF COLUMBIA:* *Reciprocity.* Washington, September 8. *Examination.* Washington, Dec. 8-9. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N. W., Washington 6.

GUAM: *Subject to Call.* Act. Sec., Dr. F. L. Conklin, Agana.

MAINE: *Examination and Reciprocity.* Portland, Nov. 12-14. Sec., Dr. Adam P. Leighton, 142 High St., Portland.

NEW HAMPSHIRE: *Examination.* Concord, Sept. 10-13. *Reciprocity.* Concord, Sept. 10. Sec., Dr. Mary M. Atchison, Room 101, 61 South Spring St., Concord.

MONTANA: *Examination and Reciprocity.* Helena, Oct. 7. Sec., Dr. Thomas L. Hawkins, 555 Fuller Ave., Helena.

NEW MEXICO:* *Examination and Reciprocity.* Santa Fe, Nov. 17-18. Sec., Dr. R. C. Derbyshire, 227 East Palace Ave., Santa Fe.

OHIO: *Examination.* Columbus, Dec. 16-18. *Endorsement.* Columbus, August 18; October 6 and Dec. 16-18. Sec., Dr. H. M. Platter, Wyandotte Bldg., Columbus 15.

OREGON:* *Examination.* Portland, Sept. 26-27. Ex. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland 4.

SOUTH DAKOTA:* *Examination.* Rapid City, August 12-13. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

TEXAS:* *Examination and Reciprocity.* Fort Worth, Dec. 4-6. Sec., Dr. M. H. Crabb, 1714 Medical Arts Building, Fort Worth 2.

WISCONSIN: *Examination.* Madison, Sept. 19. Sec., Mr. William H. Barber, 621 Ransom St., Ripon.

WYOMING: *Examination and Reciprocity.* Cheyenne, Oct. 6. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: *Examination.* Juneau, Nov. 4. Sec., Dr. R. Harrison Leer, Room 204, Alaska Office Bldg., Juneau.

ARKANSAS: *Examination.* Little Rock, Oct. 6-7. Sec., Dr. S. C. Dellinger, Zoology Department, University of Arkansas, Fayetteville.

DISTRICT OF COLUMBIA: *Reciprocity.* Washington, September 8. *Examination.* Washington, Nov. 13-14. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N. W., Washington 6.

KANSAS: *Examination and Reciprocity.* Kansas City, Nov. 24-25. Sec., Dr. L. C. Heckert, Pittsburg.

MICHIGAN: *Examination.* Ann Arbor and Detroit, Oct. 10-11. Sec., Mrs. Anne Baker, 116 Stevens T. Mason Bldg., W. Michigan Ave., Lansing 15.

OKLAHOMA: *Examination and Reciprocity.* Oklahoma City, Sept. 26-27. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

TEXAS: *Examination.* Oct. 13-14. Certificates issued by reciprocity and waiver on the first and fifteenth of each month. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

WISCONSIN: *Examination.* Madison, Sept. 19 and Milwaukee, Dec. 6. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

*Basic Science Certificate required.

GOVERNMENT SERVICES

AIR FORCE

Personal.—Brig. Gen. Albert H. Schwichtenberg, surgeon of the Air Defense Command, retired in July. He has joined the Lovelace Foundation in Albuquerque, N. Mex., as head of aviation and space medicine. Col. Benjamin A. Strickland Jr., has been assigned as surgeon of the Air Defense Command, Ent Air Force Base, Colorado Springs, Colo.

Col. Herbert Kerr has been assigned as chief of the Plans and Operations Division, Directorate of Plans and Hospitalization. He replaced Col. Joseph Nagle, who has been assigned as surgeon of the Twelfth Air Force at Waco, Texas.

Col. Wallace E. Jarboe has replaced Col. William F. Shutt, M. S. C., U. S. A. F., as chief of the Operations Branch, Plans and Operations Division, Directorate of Plans and Hospitalization. Colonel Shutt has been assigned as chief of Plans and Hospitalization, Office of the Surgeon, Second Air Force, Barksdale Air Force Base, Louisiana.

School of Aviation Medicine.—A bill authorizing 12 million dollars for new School of Aviation Medicine research laboratories at Brooks Air Force Base was passed in Congress. The requested funds are earmarked for the construction of at least seven new buildings, including nuclear, biological, and toxicological laboratories; a special building for space medicine; a cellular physiology laboratory; an acceleration laboratory containing a centrifuge; and a combined library and professional building.

ARMY

Army Reduces Size and Frequency of Booster Shots.—Army Regulations (AR 40-562) distributed early in August modified the immunization program. The former typhoid-paratyphoid immunization practice called for a booster shot every three years. Now only two booster shots are given at four year intervals for those who remain within the continental United States, Canada, Alaska, and Hawaii. Further boosters are required only when the serviceman is going to travel to some other area of the world. Similarly, cholera and typhus vaccines are given only in preparation for travel to certain areas. Once a person has received his basic series of shots, this series need never be repeated. Even while the soldier is residing in the area designated for cholera-typhus immunization, booster shots are not needed unless there is a definite risk of infection. Vaccination for poliomyelitis is now mandatory for all personnel under age 40 before travel outside the continental United States. Diphtheria toxoid is now combined with tetanus toxoid. Immunization requirements may be waived for personnel traveling under Armed Forces auspices to overseas areas on short trips, but waivers will not be granted for international quarantine requirements, including those for reentry into the United States and its territories and possessions.

Personal.—Brig. Gen. Sam F. Seeley, chief of the Professional Division in the Office of the Army Surgeon General, retired July 31, after 31 years of service. He will become a professional associate of the National Research Council in Washington, D. C.

VETERANS ADMINISTRATION

Personal.—Dr. A. W. Kruger, formerly manager of the Brooklyn, N. Y., VA hospital, has resigned from the Veterans Administration to accept the post of consultant on health services to the National Committee on Aging of the National Social Welfare Assembly, 345 E. 46th St., New York City.

PUBLIC HEALTH SERVICE

Vaccination Against Asian Influenza.—The Public Health Service has recommended consideration of influenza vaccination among groups wishing to guard against absenteeism in their professions or occupations and among those to whom the disease might be an added health risk.

The PHS has pointed out that there are now ample supplies of influenza vaccine of the polyvalent type, containing immunizing material against the important strains of influenza, including the Asian strain, and that vaccination should be planned before the fall season begins.

Surgeon General Leroy Burney said that while there is no indication at present of widespread attacks of influenza this fall and winter, there undoubtedly will be some influenza, and vaccination is a prudent measure for certain groups and individuals. He stressed that practicing physicians should be the judges of whether or not to vaccinate individuals. He said that groups which should be considered for vaccination include hospital staffs whose services are necessary to the care of the sick; groups of persons living in close proximity where influenza could spread rapidly, such as institutions; industrial or service groups, big or small, in occupations where the sudden absence of a sizable part of the force would create serious disruption of the work; and individual patients or groups who have a special risk, such as the aged, the chronically ill, the pregnant women. This special risk group, Dr. Burney said, should be the special area of consideration for the private physician.

DEATHS

Ammann, Francis Xavier Jr., Los Angeles; College of Physicians and Surgeons, Los Angeles, 1912; an associate member of the American Medical Association; chief surgeon of Southern California Edison Company until his retirement in 1950; fellow of the American College of Surgeons; veteran of World War I; served on the staff of the Good Samaritan Hospital; died July 10, aged 68, of complete heart block due to arteriosclerotic heart disease.

Bennett, Francis Wayland, Longport, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1891; formerly practiced in Atlantic City, where he was associated with the Atlantic City Hospital; died July 20, aged 94.

Blodgett, George Francis Ⓜ Captain, U. S. Navy, New Orleans; University of Arkansas School of Medicine, Little Rock, 1930; service member of the American Medical Association; entered the U. S. Navy in 1930; senior medical officer at the Algiers Naval Station; died July 9, aged 56, of myocardial infarction.

Bove, Anthony Daniel, Philadelphia; Temple University School of Medicine, Philadelphia, 1915; member of the staff of Methodist Hospital, where he died July 23, aged 66, of coronary thrombosis.

Bowen, Wilbur Lorenzo Ⓜ Peoria, Ill.; George Washington University School of Medicine, Washington, D. C., 1921; fellow of the American College of Surgeons; veteran of World War II; associated with the Methodist Hospital and St. Francis Hospital, where he was president of the staff; died July 5, aged 60, of coronary disease.

Carruth, Roy Wathen Ⓜ Tupelo, Miss.; University of Louisville (Ky.) Medical Department, 1911; died July 23, aged 70.

Chapman, Jeff Watson Ⓜ Walterboro, S. C.; born in Columbia Oct. 16, 1903; Medical College of South Carolina, Charleston, 1928; member of the American Academy of General Practice; for many years surgeon in charge of the Presbyterian Hospital in Bulape, Belgian Congo, Africa; served as secretary-treasurer of the Colleton County Medical Society; member of the advisory board of Selective Service during World War II; a trustee of the public schools of Walterboro, and of Presbyterian College in Clinton; formerly radiologist at Charles Es'Dorn Hospital; died in the Roper Hospital, Charleston, July 7, aged 54.

Ⓜ Indicates Member of the American Medical Association.

Chisholm, William Payne, Ashland, Ore.; University of Oregon Medical School, Portland, 1927; veteran of World Wars I and II; formerly chief medical officer, Veterans Administration Domiciliary, Camp White; died July 4, aged 61.

Colmore, Rupert McPherson Ⓜ Chattanooga, Tenn.; University of the South Medical Department, Sewanee, 1905; on the staff of the Erlanger Hospital; died July 9, aged 75.

Cook, William Henry Ⓜ Ridgewood, N. Y.; Long Island College Hospital, Brooklyn, 1912; veteran of World War I; on the staff of the Wyckoff Heights Hospital in Brooklyn, where he died July 22, aged 69.

Cottrell, Asher Raymond, Sebring, Fla.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; an affiliate fellow of the American Medical Association; served as a medical missionary in India and China; died July 13, aged 72, of a heart attack.

Cox, Charles Leon, Memphis, Tenn.; Memphis (Tenn.) Hospital Medical College, 1912; died in the Methodist Hospital July 15, aged 70.

Crane, Benjamin Franklin A., Saginaw, Mich.; Saginaw Valley Medical College, Saginaw, 1902; veteran of the Spanish–American War and World War I; served on the staff of the Michigan Veterans' Facility Hospital in Grand Rapids; died in the Veterans Administration Hospital July 3, aged 82.

Dakin, Robert Griffin Ⓜ Sandwich, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; past-president of the De Kalb County Medical Society; veteran of the Spanish–American War and World War I; associated with Horatio N. Woodward Memorial Hospital; for many years served on the high school board; died July 1, aged 81, of bronchopneumonia and chronic myocarditis.

Dillon, Bert John, Waukon, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; died July 5, aged 78.

Drescher, Edward Philip Ⓜ Berkeley, Calif.; University of California School of Medicine, San Francisco, 1940; specialist certified by the American Board of Ophthalmology; resigned from the U. S. Army in 1947; interned at San Francisco Hospital; formerly a fellow in ophthalmology at Mayo Foun-

dation in Rochester, Minn.; clinical instructor in ophthalmology at his alma mater; associated with Children's Hospital of the East Bay in Oakland, Herrick Memorial Hospital, and the Alta Bates Hospital, where he died July 12, aged 43, of leukemia.

Duffy, Joseph Benedict ⊗ Centralia, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1935; served as a director and president of the First National Bank of Centralia before its merger with the Pennsylvania National Bank and Trust Company of Pottsville; chairman of the advisory board of the institution; died in the Jefferson Medical College Hospital, Philadelphia, July 4, aged 48.

Duncan, William Stevenson ⊗ Pittsburgh; born in Tarentum, Pa., April 14, 1920; Hahnemann Medical College and Hospital of Philadelphia, 1945; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the International College of Surgeons and the American College of Surgeons; interned at Presbyterian Hospital; served a residency at the Elizabeth Steel Magee Hospital, where he was a member of the staff, and the Pittsburgh Medical Center; a first lieutenant in the U. S. Army, 1946-1947; clinical instructor in obstetrics at the University of Pittsburgh School of Medicine; associated with the Montefiore Hospital; consultant, obstetrics and gynecology, Allegheny Valley Hospital in Tarentum; died in Van Buren Bay, N. Y., July 7, aged 38, of coronary disease.

Eagle, James Carr, Spencer, N. C.; Jefferson Medical College of Philadelphia, 1923; member of the American Academy of General Practice; past-president of the Rowan County Medical Society; for many years member and chairman of the school board; on the staff of the Rowan Memorial Hospital, Salisbury, where he died July 14, aged 59, of a heart attack.

Emerson, Ralph Waldo ⊗ Topeka, Kan.; University of Kansas School of Medicine, Kansas City, Kan., 1921; veteran of World War I; past-president of the Shawnee County Medical Society; died in the Stormont Vail Hospital July 1, aged 65, of bronchogenic, carcinoma.

Englander, Charles ⊗ Newark, N. J.; born in Newark Sept. 6, 1890; Medico-Chirurgical College of Philadelphia, 1916; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychosomatic Society, American Psychiatric Association, and the Association for Research in Nervous and Mental Disease; veteran of World War I; served on the staff of the Neurological Institute in New York City, Essex County Hospital for Contagious Diseases in Belleville, Newark City Hospital, and Newark Beth Israel Hospital; consultant, Newark Eye and Ear Infirmary and the Irvington (N. J.) General Hospital; for many years chief pathologist, Essex County Overlook Hospital in Cedar Grove, where he died July 14, aged 67, of coronary disease.

Eschelbacher, Leo Joachim ⊗ Mount Vernon, Ill.; Universität Basel Medizinische Fakultät, Switzerland, 1936; died in the Barnes Hospital, St. Louis, July 9, aged 47, of viral hepatitis.

Evans, David Phillip ⊗ East Orange, N. J.; University of Virginia Department of Medicine, Charlottesville, 1926; member of the American Academy of Pediatrics; veteran of World War II; chief of the pediatric department at Orange (N. J.) Memorial Hospital, where he died July 13, aged 59, of acute coronary occlusion.

Eubanks, John Edward ⊗ East St. Louis, Ill.; University of Illinois College of Medicine, Chicago, 1927; veteran of World War I; associated with St. Mary's Hospital in East St. Louis and Homer G. Phillips Hospital and St. Mary's Infirmary in St. Louis, where he died July 2, aged 62, of empyema, pulmonary infarction, and arteriosclerotic heart disease.

Fawcett, Charles Emerson, Dormont, Pa.; University of Pittsburgh School of Medicine, 1909; an associate member of the American Medical Association; died July 11, aged 73.

Feasler, Charles Herbert, Beverly Hills, Calif.; Illinois Medical College, Chicago, 1905; member of the American Psychiatric Association; died in St. John's Hospital, Santa Monica, June 8, aged 77.

Fischer, Morris, Brooklyn; Long Island College Hospital, Brooklyn, 1921; on the staff of the Madison Park Hospital of Adelphi College; died in the Jewish Hospital June 15, aged 61, of carcinoma of the stomach with cerebral and spinal metastases.

Foster, Wilmot Coyne ⊗ Portland, Ore.; born in Sheridan June 21, 1893; University of Oregon Medical School, Portland, 1920; fellow of the American College of Surgeons; for four years fellow in surgery at the Mayo Clinic, Rochester, Minn., where he was made first assistant in the department of surgical anatomy; served as president and secretary-treasurer of the Board of Medical Examiners of the state of Oregon, of which he was a member since 1944; elected to the executive committee of the Federation of State Medical Boards in 1957; at one time on the faculty of his alma mater; chairman of the medical department of Selective Service System during World War II; chief surgeon for the Portland Gas and Coke Company; surgical consultant for the American Can Company; member of the medical staff of St. Vincent Hospital, where he served as chief of staff in

1952 and chief of surgery 1954-1955; member of the medical staffs of Providence, Physicians and Surgeons, and Emanuel hospitals; died July 4, aged 65.

Frey, Jesse Jacob Ⓜ Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1901; past-president of the Nashville Society of Ophthalmology and Otolaryngology; associated with the Nashville General Hospital; died July 3, aged 81.

Frisch, Felix Ⓜ Trenton, N. J.; Medizinische Fakultät der Universität, Vienna, Austria, 1905; on the staff of the McKinley Hospital, where he died July 5, aged 78, of myocardial infarction, and coronary occlusion.

Goodman, Samuel Ⓜ New York City; Fordham University School of Medicine, New York City, 1918; died in Mount Sinai Hospital July 12, aged 66.

Grove, Thomas Leon Ⓜ Saluda, Va.; Medical College of Virginia, Richmond, 1939; veteran of World War II; county medical examiner; died July 2, aged 43.

Haggart, Harry Humphrey Ⓜ Cincinnati; Johns Hopkins University School of Medicine, Baltimore, 1921; specialist certified by the American Board of Otolaryngology; member of the American Society of Plastic and Reconstructive Surgery and the American Academy of Ophthalmology and Otolaryngology; on the staffs of the Children's and Christ hospitals; died July 13, aged 66.

Helbing, Harry Hugh Ⓜ St. Louis; American Medical College, St. Louis, 1895; Homeopathic Medical College of Missouri, St. Louis, 1901; served on the staffs of the Evangelical Deaconess Hospital and the St. Louis City Hospital; died July 4, aged 89, of paralysis agitans.

Henry, John Philips Ⓜ Memphis, Tenn.; University of Tennessee College of Medicine, Memphis, 1917; associate professor of medicine at his alma mater; member of the American College of Allergists; fellow of the American College of Physicians; veteran of World War I; on the staffs of Baptist Memorial and John Gaston hospitals; died July 4, aged 65, of massive gastric hemorrhage.

Herrington, Lee Richard Sr., New Salem, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1897; served as county coroner; died in the Uniontown (Pa.) Hospital June 26, aged 90.

Hillyer, Ernest Elwood, Staten Island, N. Y.; Long Island College Hospital, Brooklyn, 1898; an associate member of the American Medical Association; died in Staten Island Hospital July 5, aged 90, of coronary arteriosclerosis.

Hitt, Ashby J., Tower Hill, Ill.; National Normal University College of Medicine, Lebanon, Ohio, 1893; died in the Huber Memorial Hospital, Pana, June 20, aged 95.

Hogshead, J. McChesney Ⓜ Chattanooga, Tenn.; University College of Medicine, Richmond, 1903; member of the American Academy of Ophthalmology and Otolaryngology; died July 13, aged 82.

Hollingsworth, Samuel Glen Ⓜ Bradenton, Fla.; Hering Medical College, Chicago, 1897; past-president of the Florida State Board of Medical Examiners, of which he was a member for many years; formerly school physician; died July 13, aged 87, of bronchopneumonia.

Hopkins, John Rolph Ⓜ Denver; University of Toronto Faculty of Medicine, Toronto, Ontario, Canada, 1893; L.R.C.P., Edinburgh, Scotland, 1893; for many years on the staff of St. Anthony's and St. Joseph's hospitals; died June 11, aged 87, of coronary thrombosis.

Jones, Garnett Ⓜ St. Clair, Mo.; Barnes Medical College, St. Louis, 1907; past-president of St. Louis County Medical Society; died in the Evangelical Deaconess Hospital in St. Louis, June 30, aged 91, of pneumonia.

Joyce, William Michael Ⓜ Middletown, Conn.; Jefferson Medical College of Philadelphia, 1917; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; veteran of World Wars I and II; associated with Connecticut State hospital and the Middlesex Memorial Hospital; died July 1, aged 65.

Karen, Benjamin Ⓜ New York City; University and Bellevue Hospital Medical College, New York City, 1924; served as secretary of the Bronx County Medical Society; associated with Morrisania Hospital and the Bronx Hospital, where he died July 1, aged 58, of aortic insufficiency, and pulmonary infarction.

Kelley, Catherine Rose, New York City; Tufts College Medical School, Boston, 1909; specialist certified by the American Board of Internal Medicine; an associate member of the American Medical Association; served on the staffs of the Bellevue, Doctors, and Misericordia hospitals; died in Nashua, N. H., July 14, aged 82, of cerebrovascular thrombosis.

Kirk, Albert Wellington Ⓜ Berkeley, Calif.; College of Physicians and Surgeons of San Francisco, 1900; died July 5, aged 88.

Labensky, Alfred Ⓜ New London, Conn.; Yale University School of Medicine, New Haven, 1921; specialist certified by the American Board of Internal Medicine; fellow of the American College

of Physicians; past-president and secretary of the New London County Medical Society; associated with Lawrence and Memorial Associated Hospitals; consulting physician, Norwich (Conn.) State Hospital and the Seaside in Waterford; died July 7, aged 66.

Lange, Horst ⊗ Seaford, N. Y.; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1927; member of the American Trudeau Society and the American Academy of General Practice; died June 15, aged 56, of cardiovascular accident.

Lassen, Fritz ⊗ Pueblo, Colo.; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1903; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; co-founder of the Parkview Episcopal Hospital; died June 30, aged 82, of coronary occlusion.

Lederman, Edward Isadore ⊗ Baltimore; University of Cincinnati College of Medicine, 1941; specialist certified by the American Board of Anesthesiology; member of the American Society of Anesthesiologists; veteran of World War II and was awarded the Silver Star, two Bronze Stars and Combat Medical Badge; associated with Sinai and Provident hospitals; died June 7, aged 44, of myocardial infarction.

Leedy, Gladys June ⊗ Indianapolis; Indiana University School of Medicine, Indianapolis, 1948; served on the staff of the Central State Hospital; on the staff of the regional Veterans Administration office; found dead June 30, aged 39.

Leigh, Horace ⊗ Yonkers, N. Y.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1935; veteran of World War II; member of the American Society of Anesthesiologists; associated with St. Agnes Hospital in White Plains, Grasslands Hospital in Valhalla, and St. Luke's Hospital in New York City; died July 8, aged 52, of heart disease.

Leinoff, Harry David ⊗ New York City; New York Homeopathic Medical College and Flower Hospital, New York City, 1927; associate professor of medicine at New York Medical College, Flower and Fifth Avenue Hospital; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; veteran of World War II; associated with Flower and Fifth Avenue Hospitals, Metropolitan, and Bird S. Coler Memorial hospitals; died July 21, aged 53.

Leith, Leroy Rhodes, Exeter, Mo.; College of Physicians and Surgeons, Baltimore, 1893; died May 21, aged 88.

Lund, Henry Joseph, Monterey, Calif.; Washington University School of Medicine, St. Louis, 1924; veteran of World War I; died in the Monterey (Calif.) Hospital July 2, aged 61.

McClellan, George Sterling ⊗ Pompano Beach, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912; charter member and past-president of the Broward County Medical Society; a former member of the state board of medical examiners; served in France during World War I; associated with the North Broward General Hospital in Fort Lauderdale; died in the Holy Cross Hospital, Fort Lauderdale, June 23, aged 67, of pulmonary edema due to myocardial infarction due to arteriosclerotic heart disease.

McCue, Francis Joseph, Hudson, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; died in the Thorn Memorial Hospital June 8, aged 81.

McTague, William Francis, New York City; Jefferson Medical College of Philadelphia, 1917; veteran of World War I; formerly associated with the Ellis Island immigration station, U. S. Public Health Service; on the staffs of Fordham and St. Elizabeths hospitals; died in the Veterans Administration Hospital July 7, aged 68.

Maloney, Thomas William, Detroit; Albany (N. Y.) Medical College, 1911; served as president of the Lake Keuka Medical and Surgical Association; veteran of World Wars I and II; associated with the Veterans Administration; died July 4, aged 73, of left ventricular failure, myocardial infarction, and arteriosclerotic heart disease.

Mann, Joseph Lee ⊗ Lieut. Colonel, M. C., U. S. Air Force, Hampton, Va.; University of Virginia Department of Medicine, Charlottesville, 1938; member of the Industrial Medical Association; interned at Norfolk General Hospital in Norfolk, Va.; veteran of World War II; died in the U. S. Air Force Hospital, Langley Air Force Base, March 19, aged 43, of metastatic bronchogenic carcinoma.

Martin, Albert J. ⊗ East Prairie, Mo.; Beaumont Hospital Medical College, St. Louis, 1896; died July 3, aged 87, of a heart attack.

Milos, James Leopold ⊗ Chicago; Loyola University School of Medicine, Chicago, 1931; served on the staff of St. Francis Hospital in Blue Island; died July 18, aged 52, of coronary occlusion.

Nielsen, Edwin Bjorne ⊗ Boston; Harvard Medical School, Boston, 1899; died July 3, aged 81.

Pennell, Melvin Thomas ⊗ Alton, Ill.; St. Louis University School of Medicine, 1941; interned, U. S. Marine Hospital, Boston; served a residency at St. Mary's Group of Hospitals, St. Louis; specialist

certified by the American Board of Obstetrics and Gynecology; served on the faculty of his alma mater; veteran of World War II; on the staffs of the Alton Memorial Hospital and St. Joseph Hospital, where he died July 5, aged 42, of spongioblastoma.

Pentel, Louis Simon ⊗ West New York, N. J.; Baylor University College of Medicine, Dallas, 1925; died in the North Hudson Hospital July 1, aged 61.

Perelman, Julius Samuel ⊗ West Orange, N. J.; University of Vermont College of Medicine, Burlington, 1935; died in Honolulu, Hawaii, July 11, aged 48.

Perkins, Roscoe Livingstone, Royal Oak, Md.; Hahnemann Medical College and Hospital of Philadelphia, 1907; an associate member of the American Medical Association; veteran of World War I; formerly practiced in Harrisburg, Pa.; died June 27, aged 79.

Poindexter, Frank Wilmore ⊗ Newport News, Va.; Medical College of Virginia, Richmond, 1913; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staffs of the Riverside and Mary Immaculate hospitals; died July 4, aged 70, of coronary thrombosis.

Pratt, Roscoe Wellington, Park Ridge, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; retired member of the medical board of the New York Life Insurance Company in New York City; died in McHenry July 15, aged 68, of carcinoma of the right lung.

Ransbottom, Irah James, Coldwater, Ohio; Cincinnati College of Medicine and Surgery, 1892; veteran of World War I and the Spanish–American War; died in the Gibbons Hospital, Celina, June 20, aged 88.

Reed, Theodore Byington ⊗ Wilton, Conn.; Cornell University Medical College, New York City, 1916; veteran of World War I; formerly practiced in New York City, where he was on the faculty of Columbia University College of Physicians and Surgeons; member of the Medical Society of the State of New York; served on the staff of the New York Nursery and Child's Hospital in New York City; died July 2, aged 69.

Reinders, Otto W., Riverside, Conn.; Washington University School of Medicine, St. Louis, 1891; died in Stamford May 7, aged 91, of arteriosclerotic heart disease.

Rozentals, Peteris Voldemars, Louisville, Ky.; Latvijas Universitāte Medicinas Fakultate, Riga, Latvia, 1929; on the staff of Hazelwood Sanatorium, where he died May 20, aged 54, of carcinomatosis.

Rubin, Isidor Clinton ⊗ New York City; born in 1883; Columbia University College of Physicians and Surgeons, New York City, 1905; specialist certified by the American Board of Obstetrics and Gynecology; member of the American Association of Obstetricians and Gynecologists and the American Gynecological Society, of which he was past-president; fellow of the American College of Surgeons and the International College of Surgeons; in 1941 received a Certificate of Merit from the American Medical Association for a scientific exhibit illustrating diagnosis of impaired tubal function by kymographic uterotubal insufflation and soluble viscous contrast medium; formerly clinical professor of obstetrics and gynecology at his alma mater and the New York University College of Medicine; on the staffs of the Mount Sinai, Beth Israel, Harlem, and Montefiore hospitals; developed the Rubin Test; an officer of the French Legion of Honor; author of books on his specialty; on the editorial board of *Fertility and Sterility;* died in London, England, July 10, aged 75, of coronary sclerosis and hypertensive heart disease.

Sheets, Cecil Clarence ⊗ Paulsboro, N. J.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1923; died May 26, aged 57, of acute coronary occlusion.

Snow, Bruce ⊗ Manchester, N. H.; Harvard Medical School, Boston, 1919; member of the American Academy of General Practice and served as director of the New Hampshire branch; associated with the Elliot Hospital; died July 1, aged 63, of cancer.

Weinstein, David ⊗ Opelousas, La.; Tulane University School of Medicine, New Orleans, 1943; served on the faculty of his alma mater; veteran of World War II and was awarded the Silver and Bronze Stars for bravery at Iwo Jima; past-president of the Rotary Club in Opelousas and St. Landry Parish Medical Society; member of the board of directors of St. Landry Bank and Trust Company; died in the Touro Infirmary, New Orleans, June 29, aged 40, of metastatic carcinoma of the stomach.

Woodall, John L., Lavinia, Tenn.; (licensed in Tennessee in 1889); died May 26, aged 88.

Woodman, James Brown ⊗ Franklin, N. H.; Dartmouth Medical School, Hanover, 1903; fellow of the American College of Surgeons; veteran of World War I; served on the city council and board of education; vice-president of the Franklin Savings Bank; associated with the Franklin Hospital, where he died June 28, aged 79, of acute coronary thrombosis.

FOREIGN LETTERS

BRAZIL

Pulmonary Cavitation.—The problem presented by the tuberculous pulmonary cavity is apparently becoming aggravated by the wide use of antibiotics and chemotherapy. Dr. Radyr de Queiroz and coworkers of the São Paulo State University presented to the Associação Paulista de Medicina a series of 14 such patients, for 6 of whom resection had been performed. When sputum smears, cultures, and guinea pig inoculations are repeatedly negative for Mycobacterium tuberculosis and x-ray examination reveals the persistance of the cavity, it may be concluded that the cavity is undergoing open healing or is already healed. We may make a diagnosis of cystic cavitation only when, by serial x-ray examinations, it is possible to recognize the cavity in the beginning of the treatment and at the different stages of the healing. A cystic cavity should not be confused with bubbles of emphysema which are found in nonspecific pneumopathies as well as in tuberculosis. The pulmonary tissue around the cystic cavity may be free from tubercles or present extensive tuberculous changes. The diagnosis of open healing of the tuberculous cavity can be made only after a long observation. Besides the risk of reactivation of the tuberculous infection, the cystic cavity may be complicated by hemorrhage, suppuration, and functional disturbances. Considering all these factors, it is advisable, if possible, to resect the lesion.

Cystic cavities may be one to several centimeters in diameter and may even reach the size of a whole lobe. As a rule, these cavities are spherical but they may be tortuous. Their walls are generally thin, but may be partially thickened at points where they adhere to precavitary fibrous tissue. Their internal lining is smooth and shiny like a serous membrane. The cavities are empty, although occasionally they contain small yellow fibrinous clots or even caseous matter. Histologically, there is a complete alteration of the structure of the cavity, the wall consisting of collagen fibers with a variable number of fibroblasts and scant vascularization. The drainage bronchus is patent and its mucosa is practically normal.

Inoperable Cancer of Uterine Cervix.—Dr. A. S. Pereira and co-workers (*O hospital*, vol. 53, June, 1958) stated that in the course of inoperable cancer of the cervix uteri there is a phase of pain in relation to the autonomic nervous system and another phase in which pain is provoked by stimulation of afferent pathways of the central nervous system. Accordingly, two types of operative treatment may be used. The authors performed abdominopelvic sympathectomies (resection of the hypogastric nerve, aortic plexus, lumbar sympathetic chains, and plexus of the iliac arteries and of the inferior mesenteric artery) with complete relief of pain. These patients continued without pain as long as the cancer was limited to structures innervated by the autonomic nervous system, but when it invaded structures innervated by the central nervous system the pain reappeared. The best results were obtained when the tumor was irradiated postoperatively. In patients with inoperable cancer of the cervix uteri suffering from intractable hypogastric and lumbosacral pain radiating to the lower extremities, bilateral cervical cordotomy was performed at levels between the first and third cervical vertebras, with complete relief of pain. Temporary urinary retention was observed, but this disappeared entirely in a few days.

Midline Episiotomy.—Dr. L. C. da Costa (*Revista de ginecologia e d'obstetricia* **52**:153, 1958) performed a midline episiotomy on 500 patients of whom 311 were primiparas. In 66 the delivery was performed by forceps, and in 6 there was breech presentation. Six of the patients gave birth to twins. Of the 506 infants, 19 were premature, 60 weighed more than 3,500 Gm. (7.7 lb.), and 13 weighed more than 4,000 Gm. (8.8 lb.). Episiotomy is the most frequent obstetrical operation. In about half of the patients in this series the wound was repaired by means of an intradermal suture. The author avoided the midline incision in women with a short perineum or when difficulties were anticipated from midforceps delivery, breech extraction, unfavorable subpubic arc, or large fetus. Local or caudal anesthesia was used for all patients. No postoperative incontinence or feces or rectovaginal fistula was observed. Midline episiotomy should be performed only by sufficiently trained surgeons in selected cases.

Trypanosomiasis.—Dr. S. B. Gonçalves, (*O hospital* **53**:799, 1958) stated that Trypanosoma cruzi produces in the host allergic lesions such as interstitial myocarditis which may be reproduced experimentally by inoculation with dead trypanosomes. T.

The items in these letters are contributed by regular correspondents in the various foreign countries.

cruzi undergoes a metabolic cycle in which protease, histidinedecarboxylase, and histaminase, metabolites derived from histamine, are produced and used by the trypanosomes in their development. In this cycle, the glycogen deposited in the muscle plays an important role, favoring the digestion of proteins. Substances that inhibit the action of histamines, such as isoniazid, chlortetracycline, and oxytetracycline, aggravate the infection produced by T. cruzi. Substances that increase glycogen deposit, such as cortisone and hydrocortisone, similarly aggravate the infection. Certain hypoglycemic substances, suramin and various diamidines, possess a trypanosomicide action for the African trypanosomas, more adapted to the parasitic life than T. cruzi and therefore more sensitive to the antimetabolic action of these drugs. The author observed that carbutamide exercised a marked influence, decreasing the extent of interstitial myocarditis produced by T. cruzi in mice.

Brazilian Trypanosomiasis.—Dr. P. F. Pereira and co-workers (*Revista Goiana de Medicina*, vol. 4, Jan.-March, 1958) showed that in the hypertrophic phase of megaesophagus in patients with Brazilian trypanosomiasis the absolute number of muscle fibers is increased to almost six times the normal. Thus the so-called hypertrophy of the muscle fibers represents hyperplasia as well as hypertrophy.

CANADA

Congress of Obstetrics and Gynecology.—The Second World Congress of Obstetrics and Gynecology, arranged by the International Federation of Gynecology and Obstetrics, was held in Montreal in June. In a conference on toxemias of pregnancy, Toppozada of Egypt outlined work showing the existence of placental toxin, present in toxemic pregnancy and inhibited in normal pregnancy. He had used injections of amniotic fluid from normal women to treat patients with eclampsia and preeclampsia with favorable results. Kotasek of Prague noted that in toxemia values in the blood for antidiuretic hormone rose with the severity of the disease. McCall of New Orleans condemned intravenous administration of barbiturates, preferring to rely on sedation with 50% magnesium sulfate intramuscularly plus hydralazine and veratrum viride. Rodriguez-Lopez of Montevideo gave 10 cc. of 1% procaine intravenously to patients with severe toxemia. In a conference on anemia of pregnancy Lowenstein of Montreal showed the difficulty of defining normal blood values in pregnancy. Llewellyn-Jones of Malaya reported values regarded as normal in Malayan pregnant women which would be abnormal in the West. Any hemoglobin value down to 6.5 Gm.% was considered normal. Below this level 25% had megaloblastic anemia and the rest had iron deficiency anemia. Green-Armytage of London stated that blood transfusion was dangerous and that he used it only as a last resort for anemia in pregnant women. In such patients he gave only 350 cc. at a time.

Three approaches to phlebitis were described. Shute of London, Ontario, treated chronic phlebitis with 800 to 2,000 units of alpha-tocopherol daily. Chalmers of Worcester, England, in treating postoperative and puerperal phlebitis used paravertebral block and also found a new sympathicolytic agent PH203 (a combination of Panthesin and Hydergin) promising. Braden of New Orleans advocated phenylbutazone in patients with superficial phlebitis. Another use for phenylbutazone was described by Black of Winnipeg who gave 100 mg. three times a day for several days for dysmenorrhea. Fitzgerald of England noted that the diagnostic signs of air embolism in the third stage of labor were hyperpnea, extreme pallor in the limbs, and a degree of shock out of proportion to blood loss. Gavel of France used a combination of dibucaine and thiopental intraspinally for difficult cesarean sections. Hobbs of Vancouver recommended promethazine with meperidine for safe and effective sedation in labor. For stress incontinence, Mulvany of Pawtucket, R. I., used various types of vesicourethrolysis, and Taleghany of Persia used a modified Marshall urethrocystopexy with a Foley catheter in the bladder. Chalmers of England also used urethrocystopexy with a high degree of success but preferred an ordinary rubber catheter to Foley's type in the bladder. Jeffcoate of Liverpool believed that there was probably a place for urethrocystopexy and sling operations in patients with stress incontinence with little to choose between them, though the relapse rate after the latter operation is lower. He had a 90% success rate for his whole series.

In a discussion on psychoprophylaxis of labor, the method based on Pavlovian principles first introduced in Russia and the method known as natural childbirth in use in the United Kingdom and the United States were found to be similar in principle. No one disputed the need for educating the pregnant woman, but there was some doubt whether antenatal preparation modified the course of labor. De Watteville of Geneva described his studies of pregnandiol excretion which suggested that the onset of uterine contractions in abortion was not related to luteal deficiency and that progesterone treatment of the condition was therefore useless. Fortin of Montreal discussed premenstrual tension, noting that while fluid retention played a part in symptoms emotional factors were even more significant. He believed psychotherapy might help. At a conference on uterine inertia, oxytocin given by continuous intravenous drip was recommended for simple inertia, but the care of incoordinated uterine action was believed to present a more diffi-

cult problem. It was doubtful whether oxytocin could change this into coordinated action, though rupture of the membranes might change the pattern of activity.

Hospital Insurance and Diagnostic Services.—As of July 1, 5 of the 10 Canadian provinces had signed agreements with the federal government for a universally available hospital and diagnostic services insurance scheme. A little before these schemes went into effect, the Minister of National Health and Welfare told the annual meeting of the Canadian Medical Association that the hospital insurance and diagnostic services program was not a single national project but rather a series of provincial projects, uniform as to essentials but differing in many respects. He regarded as basic features (1) universal availability of benefits to residents of a province on uniform terms; (2) assurance of high standards of hospital care; and (3) provision of certain basic in-patient services, including accommodation at standard ward level; nursing; laboratory, radiological, and other diagnostic procedures; certain drugs; use of operating room and anesthetic facilities; routine surgical supplies; and the use of radiotherapy and physiotherapy facilities where available. A province could choose which drugs and which outpatient services, if any, it would provide on an insured basis. It seemed that Newfoundland and possibly other Atlantic provinces would provide an outpatient program, whereas Ontario would limit outpatient coverage to emergency diagnosis and treatment of accident victims only. As regards financing, the provinces would be free to raise their 50% share of the expenses as they pleased; some intend to use general tax revenues, others premiums or special sales taxes.

The man in the street would be called on to play a larger role with regard to his local hospital and take an intelligent and more active interest in its operation. The present pattern of hospital ownership would be maintained and nothing would be done to interfere with their independence, but they would be expected to assume greater responsibilities for efficient and careful administration. The provincial authority would scrutinize their annual budget, and medical staffs would have to cooperate in preventing improper use of beds. The minister said that he would never recommend to the government anything which in any way would interfere with the patient-doctor relationship and that the new act was not intended to apply to clinical services furnished by physicians to individual patients in hospital. He said that he believed the necessary interpretations by physicians of laboratory, radiological, and other diagnostic services were integral components of good hospital care—a point of view that the radiologists and clinical pathologists will not find very reassuring since they are trying to have their services recognized as "physicians' services" and not "hospital services." The minister agreed that such procedures as bronchoscopy, gastroscopy, or ophthalmoscopy were aspects of a medical care program and had no place in his scheme. The physician was to be paid for these by his patient. The minister reassured the profession about two areas in which concern had been expressed, namely, education and research. He was keenly aware of the need for maintaining traditional patterns in medical training and therefore of providing in teaching hospitals an adequate number of teaching beds and additional financing. The present methods of financing medical research projects would not be interfered with, and research would receive some support from the scheme in some hospitals.

Public Relations and Economics.—At the June meeting of the general council of the Canadian Medical Association, the reports of the committee on public relations and the committee on economics received special attention. The council believed that one of the major activities of the public relations committee should be to assist in presenting the collective opinion and advice of Canadian physicians to the federal government and the Canadian people as regards national health legislation. Certain members of the council believed that criticisms and comments offered to the Department of National Health and Welfare by the Canadian Medical Association through its advisory committee had had little effect on the wording or intent of the Hospital Insurance and Diagnostic Services Act. They were anxious that all members of the Canadian parliament should be aware that the Association, as the mouthpiece of organized medicine in Canada, had expressed serious concern about certain features of the act, such as the differentiation of "physicians' services" from "hospital services." A resolution was therefore passed calling on the executive committee of the Canadian Medical Association to plan, in consultation with the public relations committee, a program that would insure a more effective expression of the Association's opinion to the federal government and the Canadian people.

As regards economics, progress was reported in the relative values study. This study is being undertaken to assess the relative value of various procedures in medical practice. It is under the guidance of a central committee of five persons, two physicians from university circles and three from private nonuniversity practice, who, with the assistance of management engineers, are devising a method of weighting the points allocations to various factors concerned in diagnosis and treatment. A proforma will be developed and forwarded to some 400 physicians across Canada for analysis of a number of procedures. Each of the 10 divisions will select physicians to take part in this analysis

and the group may ultimately comprise 3 to 4% of the medical profession, representing all fields of medical practice.

The council debated at length the question of arbitration and negotiation between physicians and employing bodies. There are major differences in employer-employee relationships, between physicians practicing medicine and other employees presently subject to compulsory arbitration. It is difficult to negotiate compulsory arbitration arrangements for the profession when payments are made on a fee-for-service basis, but the council adopted a new paragraph for inclusion in the "Statement of Policies and Principles on Health Insurance in Canada," emphasizing the need for any member or group of members of the medical profession to be given the same fundamental rights as other citizens in choosing the type and location of practice and in negotiating agreements covering methods of remuneration, conditions of professional service, and modification or termination of contracts. The Canadian Medical Association and its divisions accept responsibility for collective bargaining on behalf of a salaried physician. This acceptance means that there is no need for physicians to be active members of any union. In relation to health insurance plans the council agreed that such plans should be administered at the provincial level by a commission representative of those persons providing and receiving the service. They also agreed that whenever medical services are provided to persons whose care is a responsibility of government or other third party, the professional component of this care may be compensated for separately and preferably in accord with an agreement based on fee-for-service.

Persistence of Poliomyelitis Antibodies.—The village of Saint-Augustin, Quebec, is very isolated, being accessible only to ships in summer and planes in winter. In January, 1950, an epidemic of poliomyelitis struck the village, possibly reaching this community via one of the rare visitors. Of the 417 people living in the village, 33 were attacked, 13 being paralytic cases. Only children aged 2 to 14 years were attacked. Pavilanis and Frappier (*Canad. M. A. J.* **79**:11, 1958) described laboratory studies at the time of the epidemic and later. During the epidemic 90% of the children of the village were excreting poliovirus type 1. Two years later nobody was excreting virus. After the epidemic, almost all the population had antibodies to poliovirus types 1 and 2, but children examined before the onset of symptoms had no antibodies to type 1. Moreover there was a sharp distinction at the age of 10. Children up to 10 years old had either no type 2 antibodies or only a low titer, whereas at age 11 or over children had a high titer of type 2 antibodies. It seems that there was an epidemic in 1939, 11 years before the second epidemic, and that the first epidemic due to type 2 virus had left a high titer of antibodies in the population and also apparently conferred some resistance to type 1 virus.

FRANCE

Chorea and Rheumatic Fever.—R. Lutembacher (*Presse méd.* **66**:1067, 1958) called attention to the close connection between chorea and rheumatic fever. The cardiac lesions were shown to be grossly and histologically identical. Chorea may occur before any inflammatory manifestation, or its onset may be associated with an acute inflammatory process that develops in the joints or serous membranes. The adrenal insufficiency, as detected by assessment of the blood corticosteroid level, was equal to that observed in rheumatism in the third week of its course. The motor incoordination was controlled by antirheumatic chemotherapy or by hormones. One should not overlook the use of such a treatment as a means of preventing postchoreic cardiopathies.

Electrocardiograms.—Maurice Pestel (*Presse méd.* **66**:644, 1958) stated that electrocardiography, even though helpful, is far from infallible. In addition to the frequent discrepancies between the anatomic changes and the electrical alterations, there may be some uncertainty in the reading of the tracings. A study of 100 tracings as interpreted by different cardiologists emphasized the profound disagreement that may exist in the interpretation of normal as well as abnormal tracings. Furthermore, the fact that in about 16% of cases the same tracings submitted to the same experts on a second occasion were interpreted in a different fashion was evidence of a lack of exact standards of interpretation.

Pulmonary Decortication.—Henri Le Brigand (*Presse méd.* **66**:1089, 1958) believes that decortication makes it possible to remove a pouch from a purulent pleurisy and to secure the reexpansion of the underlying lung and the recovery of its function. The procedure is feasible since there remains a cleavable plane between the pachypleuritis that coats the lung and the underlying visceral pleura. The external wall of the pouch, as made of a parietal pachypleuritis, remains also separable from the thoracic wall. Nevertheless, the cleavage plane may be of varying quality on the inner side as well as on the outer side. In patients in whom both splitting procedures are readily performed, it is possible to remove en bloc a pouch of chronic purulent pleurisy and ensure an excellent pulmonary reexpansion. Otherwise, the splitting process induces varying difficulties. On the visceral side it may be feasible only at the expense of a certain number of breeches of the cortex. On the parietal side it may cause hemorrhage and necessitate leaving in situ a more

or less extensive area of pachypleuritis. Whatever the difficulties, decortication should no longer consist merely in removing the visceral cover of the lung and allowing the pulmonary areas thus released to reexpand. One must always perform such a total pneumolysis as makes possible a total and harmonious reexpansion of the lung.

The presence of underlying pulmonary foci may necessitate more or less extensive pulmonary resections, this being rarely seen in those decortications performed for common purulent pleurisy or for pyohemothorax but more frequently seen in patients with tuberculous pleurisy. Meticulous postoperative care is necessary, especially perfect drainage, to assure the evacuation of the effusion and the return of the lung to the thoracic wall. The postoperative death rate for this operation is less than 1%. Such complications as hemorrhage requiring reoperation are relatively frequent. Remote results are excellent. In some patients the persistence of a residual pouch may necessitate a secondary thoracoplasty. There is no absolute parallelism between the value of the anatomic recovery and that of the functional recovery in the lung.

Pleural Manifestations in Cirrhosis.—Poinso and Chanas (*Presse méd.* 66:1106, 1958) studied a series of 400 patients with cirrhosis, of whom 174 had atrophic portal cirrhosis, 138 had hypertrophic cirrhosis, 5 had cirrhosis with an atrophohypertrophic form, 15 had pigmentary cirrhosis, 9 had metaicteric cirrhosis, 3 had cardioethylic cirrhosis, 2 had fatty cirrhosis, 1 had cholostatic cirrhosis, 2 had adenocarcinoma, and 51 had an undefined form of cirrhosis. Of the 400 patients, 103 showed pleural effusion, and in most of these the effusion was due to a mechanical factor. The stasis, edematous alveolitis, and subsequent pleural transudation were associated with the rising of the diaphragm and the pressure of ascitic fluid on the pulmonary bases. In only 5 of the 103 patients was the pleural effusion of tuberculous origin.

INDIA

Electrical Activity of Muscles in Infantile Cerebrospastic Paralysis.—Fudel-Ossipova and Mezhenina (*Neurology*, vol. 6, January-March, 1958) stated that the electromyograms of affected muscles in infantile cerebrospastic paralysis show marked deviations from normal. The more pronounced the muscle spasm, the lower are the action potentials appearing in the muscle during voluntary contraction. Besides, the activity of the antagonist muscle at the same time is about the same as that of the functioning muscle. A prolonged disorder of the normal function of a muscle in spastic paralysis leads to pathological changes in its structure. The morphological picture of these affected muscles is characterized by numerous destructive changes. As the functional ability of a muscle will be affected by such destructive changes and as the electrical reaction of a muscle during voluntary contraction indicates its functional ability, the authors tried to find out whether a correlation exists between the electrical activity of spastic muscles and the morphologic changes found in them.

They studied 36 patients with infantile cerebrospastic paralysis between the ages of 5 and 16 years. While studying the electrical activity of spastic muscles, electromyograms of the antagonists were also recorded. A biopsy specimen of the affected muscles was also taken. Eight of these patients had a mild degree of spasm, 20 had a moderate degree, and 8 were severely affected. A definite correlation was noted between the extent of destructive changes in the morphologic structure of a muscle and its electrical activity. The milder the morphologic changes, the higher the action potentials appearing during voluntary contraction and the closer the resemblance to a normal electromyogram. When the pathological changes were advanced, as in patients with severe spasm, the electrical activity was reduced to a minimum and their function was restricted. With marked changes in the structure of a muscle, transplantation of its tendon will not give the desired effect. Preoperative electromyograms would thus help to ascertain the functional potential of a muscle and thus help in selecting a suitable transplant.

Carcinoma of the Breast.—D. G. Reddy and coworkers (*Indian Journal of Medical Sciences*, vol. 12, April, 1958) studied a series of 681 patients with carcinomas of the breast. Breast cancers formed about 8% of the total malignancies in both sexes. The youngest patient in the series was 17 years old and the oldest 70 years, the maximum incidence being between 30 and 50 years of age. About 10% occurred below the age of 30. About 1.5% of all breast cancers occurred in men; 53% of the tumors were in the left breast, and the upper outer quadrant was the commonest site. Multiparity and breast feeding did not have any relation to the development of these cancers among the women. The commonest variety was the scirrhous type (76%). Infiltrating comedocarcinomas formed 8%, papillary carcinomas 4.5%, medullary carcinoma with lymphoid infiltration 8.5%, and colloid carcinomas 2%. Only two cases of Paget's disease were seen with the characteristic changes in the nipple and an intramammary growth.

Study of Plasma Proteins.—B. S. Kulkarni and coworkers (*Journal of Postgraduate Medicine*, vol. 4, April, 1958) examined the plasma proteins by electrophoresis in 187 subjects between the ages of 18 and 50 years who were taking vegetarian and mixed diets. All the subjects were healthy and well

nourished. In the last two-year period before taking their blood samples, they had not suffered from any pathological disorder; 136 were men and 51 women; 152 were between 18 and 30 years of age, 24 between 31 and 40 years, and 11 between 41 and 50 years; 72 took a vegetarian diet along with milk and milk products and 115 ate a mixed diet including milk, eggs, meat, fowl, or fish. The total protein content of the plasma was about the same as reported by Western authors. The albumin level was also the same; the values of alpha 1, alpha 2, and beta globulins, though slightly lower, were comparable to those obtained in the West, but the value of gamma globulin was slightly higher. The cause of this high level is not clear. The total proteins were slightly less in women as compared to men, and this was due to the low value of albumin; this difference was not, however, statistically significant. With increasing age, the levels of total proteins and of beta and gamma globulins showed a progressive rise but those of alpha 2 globulin and fibrinogen showed a fall. A statistically significant difference was noted only in the value of gamma globulin. The total proteins were slightly higher in those taking non-vegetarian diets but this difference was not statistically significant.

Right Heart Catheterization.—K. K. Datey and coworkers (*Journal of Postgraduate Medicine*, vol. 4, April, 1958) catheterized the right heart of 30 cardiac patients (23 with congenital and 7 with acquired heart disease). Three patients with pulmonary stenosis showed a right atrial pattern in the electrocardiogram with large "a" waves and the "c" wave being represented by a small hump on the descending slope of "a" wave; elevation of right ventricular systolic pressure depending on the degree of stenosis; normal or diminished pulmonary arterial pressure (in one case the pulmonary arterial pressure was slightly higher, probably due to the development of slight pulmonary incompetence following an attack of subacute bacterial endocarditis); and an infundibular or combined infundibular and valvular pattern in the pressure gradient across the pulmonary valve. Both systemic and pulmonic blood flow were equal but diminished while the arteriovenous oxygen difference was always over 5 ml. per 100 cc. Six patients with the tetralogy of Fallot and one with the pentalogy of Fallot were studied. The catheter could be passed into the aorta in four. There was elevation of the systolic pressure in the right ventricle, the pulmonary arterial pressure was low, and the tracing often deformed. There was a pressure gradient across the pulmonary valve. The systolic blood flow ranged above or below the normal value and the pulmonary blood flow was reduced. The arterial oxygen saturation ranged between 67 and 87.5% and in one patient it was 92%.

Of three patients with patent ductus arteriosus, one had an atrial septal defect and probably a ventricular septal defect. These showed a greater oxygen content of blood samples from the pulmonary artery than that from the right ventricle; greater pulmonary blood flow as compared to systemic blood flow, the ratio varying between 1:1.5 and 1:3; normal pulmonary arterial pressure; and in some the catheter could enter the aorta through the patent ductus. Three patients with atrial septal defect showed elevation of the right atrial pressure and also of the right ventricular and pulmonary arterial pressure. They also showed increased oxygen saturation in the right atrial samples of blood while the catheter could enter the left atrium, left ventricle, or pulmonary vein. Patients with mitral stenosis showed elevation of the pulmonary arterial wedge pressure, pulmonary arterial pressure, right ventricular pressure, and right atrial pressure. In those with constrictive pericarditis the right atrial pressure showed marked elevation and the right ventricular pressure curve showed slight elevation of systolic pressure. There were no deaths in this series. Minor complications were seen in a few patients. Thus occasional ventricular extrasystoles occurred in almost all patients and one developed a short paroxysm of ventricular tachycardia. Right bundle-branch block was seen in two patients; in one it was transient and in the other it disappeared within five minutes of withdrawing the catheter into the superior vena cava. Venospasm occurred in three patients and pyrogenic reaction in four of those catheterized early in the series. Autopsy performed on four postoperative patients within a month of cardiac catheterization did not reveal any traumatic lesions on the endocardium. Local thrombophlebitis developed in five.

Toxigenicity of Corynebacterium Diphtheriae.—Soman and Patel (*Indian Journal of Medical Sciences*, vol. 12, April, 1958) compared the method of intradermal inoculation of guinea pigs used as a standard procedure for determining the toxigenicity of Corynebacterium diphtheriae with the in vitro plate method and the chick-embryo inoculation method. Nasal swabs and throat swabs were collected from patients suspected of having diphtheria and from suspected carriers. After making direct smears and culturing and typing, the culture was tested for its biochemical and hemolytic activity and tested by the three methods for toxigenicity; 120 cultures were thus isolated and 110 tested for their biochemical properties, of which 3 turned out to be the gravis and 107 the mitis type. On typing 45 strains on tellurite agar plates, 3 were found to be the gravis, 3 the intermedius, and 104 the mitis type. Eighty-nine cultures were subjected to the standard virulence test in the guinea pig, the in vitro method, and the chick-embryo inoculation. The results with all three showed

perfect agreement. As the in vitro method is rapid and cheap it can be used in small laboratories where guinea pigs and eggs are not freely available. The diphtheria antitoxin used in this test should be properly selected and used in proper concentration to get clear results. This method being simple, economical, and reliable as compared to the other two may be accepted as a routine procedure for the determination of toxigenicity.

Succinic Dehydrogenase in Human Spermatozoa.—Kothare and De Souza (*Journal of Postgraduate Medicine*, vol. 4, April, 1958) described a method of demonstrating succinic dehydrogenase cytochemically using p-nitrophenyl substituted ditetrazole in mature normal, immature, and abnormal spermatozoa occurring in the semen of normal healthy men. The enzyme was localized on or in the vicinity of the mitochondria and was concerned in the vital metabolism of the cells. The semen was treated with buffer substrate tetrazolium solution and the enzyme was demonstrated as fine discrete blue granules. In normal adult spermatozoa they were localized in abundance over the midpiece with a slight condensation at the margins. In an abnormal form with a large head with two distinct nuclei and abundant cytoplasm, an occasional granule was seen in the head. Faint granules in the head and body were seen in pin head sperms and a few of these were devoid of granules. Variable patterns were seen in ring-tailed sperms with faint granules in the head or no granules at all. An occasional sperm with a double head and double body showed a concentration of the enzyme in the midpiece. Sperms with a cytoplasmic membrane around the neck and the midpiece showed variable amounts of succinic dehydrogenase in the membrane. Most showed a few fine granules in the head. This cytochemical method would help in the study of the morphology of spermatozoa, especially in their progress to maturity.

ISRAEL

Asian Influenza.—The experience of the virus laboratory of the Hebrew University–Hadassah Medical School in the diagnosis of influenza during the outbreak of Asian influenza between October, 1957, and January, 1958, was reported by A. Bernkopf in *Harefuah* (55:288, 1958). From 131 specimens submitted for virus isolation, 37 strains of influenza virus were isolated. The highest percentage of isolations was obtained from throat washings (38%). Next highest was the percentage of virus isolations from lung material (27%). Less satisfactory was the percentage of isolations from sputum (18%). Bacteria resistant to penicillin and streptomycin were isolated from 19 specimens, 10 of them lung material. Two of the lung specimens contained resistant staphylococci. In the other patients resistant Klebsiella, Pseudomonas aeruginosa, and Escherichia coli were present. Antigenically, all influenza strains were homogeneous and were inhibited specifically by A/Singapore/1957 antiserum. Serologic diagnosis was based on the rise of antibodies as determined by the hemagglutination inhibition or, more rarely, the complement fixation test. Though less specific, the latter test was found to be highly sensitive. For the hemagglutination inhibition test, use of a high egg passage strain and inactivation of the nonspecific inhibitor in serum by cholera filtrate were found important. Treatment of serums with trypsin or periodate was less satisfactory. It was repeatedly observed that antibody production as measured by the hemagglutination inhibition or complement fixation test was delayed, or only small amounts of antibody were produced. In a few cases in which the diagnosis of influenza was highly probable on both clinical and epidemiologic grounds, no rise of antibody level could be demonstrated. These findings may be explained by the complete novelty of the Asian strains of influenza which differed in their antigenic composition from all strains previously encountered.

Blood Groups in Sephardic Jews.—The ABO, MN, and Rh-Hr blood group frequencies in Sephardic Jews were reported by J. Gurevitch and co-workers in *Harefuah* (54:293, 1958). In the ABO system the frequency of group A was relatively high and the frequency of the phenotype O low. The *M* and *N* genes were evenly distributed, but the Sephardic Jews exhibited an interesting, though unexplained, heterosis in that the phenotype MN (70%) far exceeded the expected 50%. In the distribution of the Rh-Hr chromosomes the high frequency of the Mediterranean CDe (R_1) chromosome—characteristic for all Jewish communities so far examined—was found. The cde and cDe chromosomes were relatively frequent, indicating the possibility of an African and Spanish admixture.

Hemolytic Trait in Oriental Jews.—A metabolic abnormality of erythrocytes was detected in all patients with favism and hemolytic reactions due to drugs, as well as in a large proportion of members of their families, by Szeinberg and Sheba (*Harefuah* 54:285, 1958). The abnormality was detectable even in the umbilical cord blood. In a large-scale population survey no subjects with this abnormality were found among Ashkenazic Jews, while about 20% of non-Ashkenazic Jews originating from Iraq or Persia, 5% of Yemenites and immigrants from Turkey, and 2% of North African Jews were found to be affected. Similar findings were detected also among non-Ashkenazic Jews from Greece, Egypt, and Sudan and in a small percentage of Arabs from the central part of Israel. Genetic studies suggested that the abnormality is hereditary and probably transmitted by a sex-linked, incompletely dominant gene with variable expressivity. The transient glutathione instability of newborn infants during the first hours of life dif-

fers from this condition, as it is not hereditary, is not racially determined, is not connected with deficient glucose-6-phosphate dehydrogenase activity, and may be corrected in vitro by addition of glucose or inosine to the blood.

Drug Resistance in Shigella.—About 50% of Shigella strains isolated in Israel were found by G. Altmann and co-workers to be resistant to sulfadiazine. While chloramphenicol proved to be the drug of choice in the treatment of bacillary dysentery until 1955, 19% of a series of Shigella isolated in 1956 were found to be resistant to chloramphenicol and 17% to tetracycline. In 1957 the percentage of strains resistant to chloramphenicol rose to 24% and of those to tetracycline to 35%. All strains tested proved to be sensitive to polymyxin B and neomycin. A number of cases of shigellosis caused by resistant strains followed a severe and protracted course, and some of them ended fatally. Using the rapidity of disappearance of Shigella from the stools as therapeutic index, a significant difference was noted between sensitive and resistant strains. The need for planned treatment of bacillary dysentery was stressed in the light of these findings.

NEW ZEALAND

Control of Extradural Hemorrhage.—Dr. R. G. Robinson (*Australian & New Zealand J. Surg.* **27**:303, 1958) reported that in some patients the control of bleeding from extradural hemorrhages may be difficult. Recurrences have been reported. In a series of 16 patients with extradural hemorrhage treated surgically, 5 died. There was an appreciable reaccumulation of clot which partly contributed to the fatal issue in two of these. In another patient, the wound had to be packed with gauze before the bleeding could be arrested. In two of the author's patients hemostasis proved unusually difficult. One was a woman who had fallen off her bicycle. Neurological symptoms appeared a few hours later. A left temporal bur hole was made under local anesthesia and a huge extradural clot was removed. There continued to be a diffuse vascular oozing from the dura and many of the bleeding points were inaccessible owing to the posterior extent of the dural stripping. An osteoplastic flap was the only way of getting at the vascular weeping from the dura. The patient regained consciousness five hours after the operation and made a good recovery. The use of an osteoplastic bone flap in extradural hemorrhage has been a matter of controversy. Arresting the diffuse vascular oozing from the dura is admittedly difficult but many of these difficulties are due to a failure to close the dead space left by the evacuated hematoma. The use of an osteoplastic flap has the merit that it allows hemostasis of the exposed dura. The dead space may then be reduced by stitching the dura up to the surrounding tissues. The disadvantages of a flap are that specialized instruments are needed and the restless state of the patient may make the procedure difficult even for the expert.

Recently Dr. Robinson has used another method which is simple and promises to overcome these difficulties. A 14-year-old boy who had been kicked in the head presented neurological symptoms. Under local anesthesia a conventional left temporal bur hole was made and enlarged, and numerous bleeding points were sealed with the diathermy. Four hours later there was a massive recurrence of the extradural hematoma. The dura persistently oozed. Division of the middle meningeal artery at the foramen spinosum made no difference in the bleeding. A small nick was made in the dura and Ringer's solution was injected into the subdural space. The dura showed no signs of staying expanded and the incision was closed with a stitch. A lumbar puncture was made and 40 ml. of Ringer's solution was injected into the subarachnoid space. The dura came out into tight contact with the skull and the bleeding ceased at once. The wound was closed over a soft rubber drain. The patient improved rapidly and the drain was taken out on the next day but there was no blood on the dressing. This was an uncommon case of recurrent extradural hematoma as there was no fracture of the skull and the major vessels were intact. The method of injecting isotonic sodium chloride solution or Ringer's solution into the subarachnoid space after the clot has been removed is effective because it expands the compressed brain and closes the dead space, reduces the tentorial herniation, and counteracts any intracranial hypotension. If the dural oozing persists after the control of the major vessel or when the dead space is not obliterated by the expansion of the brain, enough isotonic sodium chloride solution should be injected into the lumbar subarachnoid space to overcome these difficulties. It is unlikely that more than 100 ml. will be needed and at the worst no harm is done. Only in failure of this simple method should the use of an osteoplastic flap be considered with its requirement of a general anesthetic. There is no place for gauze packing or ligature of the external carotid artery in these troublesome cases.

Nontuberculous Empyema.—Dr. James A. Baird (*Australian & New Zealand J. Surg.* **27**:313, 1958) reported that empyema of the pleural cavity has increased in incidence in the past two or three years. Following the introduction of the sulfonamides and penicillin in the treatment of pneumonia, pleural complications became uncommon, but due to antibiotic-resistant staphylococcic infections their incidence is increasing. The aims of the treatment must be the sterilization of the pleural cavity and the return of the hemithorax to normal, i. e., the complete expansion of the lung and the restora-

tion of the normal movements of the chest wall and diaphragm. Of a series of 32 patients seen in the past five years, 27 have been seen in the past two years. The treatment of pleural suppuration must be vigorous, consisting of frequent aspirations of the fluid with the instillation of the appropriate antibiotic and proteolytic enzymes as required. Thoracic physiotherapy must be instituted early. Radiographic control is essential.

Failure to obtain progressive reexpansion of the lung is an indication for surgical treatment. Intercostal catheter drainage is the treatment of choice in infants and the elderly and in small loculated empyemas. All other empyemas are best treated by excision. This has been practiced in 14 patients without any deaths. It has been stated that this operation should not be practiced in less than eight weeks from the onset of pleural infection and that the disadvantages of the operation are the possibility of a residual empyema pocket requiring drainage and the recrudescence of the infection. Neither of these complications is likely to occur if the operation is performed within four weeks of the occurrence of pleural suppuration. At this stage the tissues are still mobile and space obliteration occurs rapidly after excision. Early operation avoids the necessity for mutilating flap operations on the chest wall to close infected dead spaces associated with late empyema. Furthermore blood loss is less with early operation. Other advantages are primary healing, the patient is fit for discharge two or three weeks postoperatively, and the source of toxemia is promptly removed. It has been maintained that because excision is a severe procedure, it should be reserved for selected patients such as those with total empyema. It cannot be denied that excision is a much more serious operation than rib resection but it has been shown that it is safe and that the convalescence is much shorter.

NORWAY

Poliomyelitis Vaccination.—In *Tidsskrift for den norske lægeforening* for May 15 Dr. Evang stated that the Norwegians have experimented with both intracutaneous and subcutaneous injections of poliomyelitis vaccine, the subcutaneous dosage being 1 ml. In cooperation with the Danes, who have consistently given their vaccine intracutaneously, the Norwegians in the autumn of 1957 compared the effects of both methods on medical students in Oslo. The antigen response after two injections given by one or the other method was compared, and though neither emerged from these tests as definitely superior, the subcutaneous injections of 1 ml. appeared to give slightly better results. Directions were therefore given to use this method, and the experiments on medical students have continued. Vaccines made in the United States or Denmark were used.

The Hearing of School Children.—The systematic examination of the hearing of school children in Oslo began in 1919. What these examinations have achieved is reported on in *Tidsskrift for den norske lægeforening* for June 1 by Dr. R. Moe, whose figures are mostly concerned with two groups, one composed of children observed in the school years 1948-1949 and 1955-1956 subjected to a follow-up examination and the other of more than 2,000 children screened in the winter of 1957. Audiometry has been adopted as the routine method of testing since autumn, 1957. Since 1950 all children with impaired hearing have had pure-tone audiometry, and since 1947 every such child has been kept under observation until his hearing became normal or until maximal improvement was obtained. Of the 44,784 children examined between 1948 and 1956 3,170 (7%) were found to have impaired hearing. On the final check-up, of 90.5% of these children, 69.2% were found to have regained normal hearing, 12.1% were improved, and 18.7% were unimproved or worse. In 69 children (0.15%) the loss of hearing was so severe that teaching had to be given in a separate school for children with defective hearing. Of the 37 children in such a school in 1957 there were only 2 with conduction deafness, the other 35 suffering from perceptive deafness.

In the past four years all the children found to have impaired hearing in their first year at school were retested in their final year, when it was found that 70.6% had regained normal hearing, 10.3% were improved, and 19.1% were unimproved. In the winter of 1957 audiometry was carried out on the 2,123 children in the fourth grade who had been tested in the first grade. Of these, 6.1% had impaired hearing while in the first grade, and 4.4% while in the fourth grade, while only 2.2% had impaired hearing on both occasions. Impaired hearing due to middle-ear disease incurred in the preschool years was discovered in 1.6% of the children in their first year at school. Similar sequelae without impaired hearing were found in another 1.6%. Moe concluded that the presence of some chronic adhesive lesion or sequelae of otitis in over 3% of the children at the age of 7 emphasized the need for preschool prophylaxis, with adequate treatment of acute middle-ear disease early in life.

UNITED KINGDOM

Causes of Overweight.—At the annual meeting of the B. M. A. in Birmingham, girth control was advocated by Dr. H. M. Sinclair, of Oxford University, an authority on human nutrition. It could in part, he said, be the answer to the growing amount of degenerative disease. Cardiac and other diseases may be attributed to a deficiency of the fatty acids that are essential to the body. Cow's milk and butter are deficient in these acids. They supply the

wrong fat. Giving children unlimited food, especially milk, produces early maturity, a certain amount of obesity, and chronic degenerative diseases later. In general, the Eskimo child, although fat, is in better health than the typical American child.

We need a particular type of fat in our diet, but the more we process food the less of it we get, because processing destroys the essential unsaturated fatty acids. The Eskimo child naturally consumes large amounts of highly unsaturated fats of the right type; but we send a bus to take a child a quarter of a mile to school, where he is given large amounts of milk before he returns home to sit in front of a television set, perhaps smoking a cigarette. If he survives and gets into industry, he becomes less and less active as more and more machines do the work, again giving him more time to smoke. Dr. Sinclair does not believe that there is a direct connection between these degenerative diseases and smoking but that the associated lack of physical exercise and improper nutrition are the determining factors. He described the national "Drink more milk" campaign as pernicious. Excessive body fat represents a waste of food and a danger to health.

Cold Babies.—At the same meeting Dr. Trevor Mann of Brighton said that more than 100 babies up to six weeks of age die of cold in a year in Britain. In five years he had seen 15 cold babies, 8 of whom died. Their average body temperature was 90 F (32 C), but one baby had a temperature of 74 F (23 C) or 24 degrees (F) below normal and died five days after admission to hospital. These babies did not look ill; they were pink and glowed. The condition occurred on the coldest days. Babies could die of the cold at a room temperature of 55 F. Bathing the baby in the winter is hazardous. The period of greatest danger is 2 a. m. when the mother and father are warm in bed and the fire has been turned out. Fires should not be allowed to go out at night when the baby is young. Dr. Hugh Ellis of Oxford called the condition "the refrigerator syndrome." He believes that factors other than cold are involved, because many babies get along well in a cold room.

Hospital Beds Still Scarce.—At the same meeting Dr. E. A. Gerrard, of Manchester, spoke of the public scandal of hospital waiting lists. In surgery there are four people waiting for every bed in the teaching hospitals in London and five in the provinces. In gynecology the position is worse. There are nine patients waiting for every bed. Patients with nonurgent cases in all parts of the country must wait three to four years. One reason for this is miscalculations at the start of the National Health Service, but the planners are not the ones who must wait two or three years for an operation. It is the ordinary people. A motion urging prompt building of new hospitals was carried.

Medicine's Curtains of Mystery.—Dr. James Robertson Justice, Rector of Edinburgh University, better known, perhaps, in his role as a film actor, made a plea for the abolition of mystery in medicine when he gave this year's Winchester address in June. He praised the "closed shop" in medicine insofar as it upheld the rigorous standards of conduct, but he felt that medicine, an empirical science, tended to be too esoteric, to share its mysteries only with the initiated, and to assume that it was bad for a patient to know too much. This attitude was based on false premises. The speaker agreed that "popular medicine" was a horror to be avoided at all costs, but he believed that the medical profession should cease to take refuge behind the archaic curtains of mystery. People had come to take medicine for granted, and if this were to be corrected it would be necessary for physicians to take patients more completely into their confidence. He objected not only to the conspiracy of silence but to the attitude that suffering was somehow linked with sin and that an ability to endure pain was a sign of merit.

Action on Nazi Camp Doctor.—Action has been started to deprive Dr. Herta Oberheuser, former Nazi concentration camp physician, of her right to practice medicine at Stocksee, North Germany. This news was heard with satisfaction by the British Medical Association at its annual meeting. Oberheuser was a fanatical young Nazi who volunteered for service at the notorious Ravensbruck concentration camp for women, where sadistic experiments were made on prisoners. When she and other physicians were tried at Nuremberg, in 1947, evidence was produced that she selected the victims and assisted in the experiments. She was sentenced to 20 years imprisonment but was released in 1952. She was treated as a returned prisoner-of-war. She received a payment and an interest-free loan to resume practice. Two other reinstated physicians were Hans Eisele, who was at Buchenwald camp, and Hans Bodo Gorgass, whose euthanasia experiments involved 1,000 victims in a mental hospital. The evil done in these camps has not ended. Even now many concentration camp survivors shrink from the simplest and kindest examinations. The opinion was expressed that it is our duty to protest that doctors such as those named should never be allowed to practice medicine again since what they have done is a violation of the very basis of medical practice. Although in Germany a doctor receives permission to practice from the state, which alone may take it away, in the Oberheuser case, the Chamber of Doctors of Schleswig-Holstein and the Federal Chamber of Doctors have both sought the withdrawal of Oberheuser's right to practice. The Ministry of the Interior has started proceedings

for such a withdrawal. The German medical profession hopes that the right to practice medicine will be taken away from Dr. Oberheuser.

The B. M. A. meeting carried a motion expressing deep distress that the German authorities permitted Oberheuser's reinstatement. A spokesman for the Schleswig-Holstein Ministry of the Interior said that an investigation into the case began last year. It was not known when it would be completed. Dr. Oberheuser will have to be heard first. A representative of her local medical council said that if only part of the accusations against her are true she should be considered unworthy to be a doctor. People at Stocksee, the village where she practices, however, are reported to regard her as a good doctor and are inclined to forget her past.

Broadmoor.—At Broadmoor, an asylum for the criminally insane, Frank Mitchell, an inmate who boasted that no prison bars could keep him incarcerated, succeeded in making his escape and was at liberty for two days. By so doing he placed in the hands of the Prison Officers' Association the strongest weapon it has had in a year-old battle between the nursing staffs of the institutions and the medical consultants. The battle has been fought round the following question: In the interests of the public and patients in the institutions, which patients should have priority, security, or mental treatment? The prison officers wanted more locked doors. The psychiatrists insisted that if patients were to be treated satisfactorily they must have freedom. In 1948, the Criminal Justice Act transferred control of Broadmoor from the home office to the Ministry of Health. Behind the transfer was the enlightened policy of treating inmates as mental hospital patients rather than criminals. One patient's main delight was smashing windows. Twenty years ago this would have cost him time in the security block from which Mitchell escaped, but when male nurses placed the window-breaker in a room with iron bars in front of the glass, a psychiatrist protested that the atmosphere was wrong. "If he wants to smash windows let him," he ordered. "Glass is cheap. To restrict him will ruin his treatment." Petty pilfering among patients, punishable in the old days by seclusion, is now a subject for talks between psychiatrists and patients. After the escape of child-killer, John Straffen, the Broadmoor Inquiry reported in June, 1952, that the two main functions of the committee are detention and treatment. At one time, detention was regarded as primary and treatment as secondary, but during 14 years of management by the present medical superintendent, Dr. Hopwood, more and better treatment has been made available for patients. The prison officers' leaders now want control of the institutions given back to the home office.

Pay Increase to Physicians Refused.—The fight on pay between the government and the physicians flared up again at the annual meeting of the British Medical Association in Birmingham. Cries of "Shame" greeted an announcement that the Minister of Health had refused a further interim increase for 40,000 family and hospital physicians in the National Health Service. The physicians originally asked for a 24% increase, and when it was rejected they planned a phased withdrawal from the health service. The physicians were then awarded interim pay increases of 5 and 10%. When no further action was taken by the government by Easter, they claimed another interim increase to meet the further rise in the cost of living. The Minister's letter stated the following.

> The reasons why I am unable to agree that the circumstances warrant a further interim increase at the present time are broadly twofold. In the first place, although the Royal Commission are not yet ready to report, they are pressing ahead with all speed and, assuming that their report is not unduly delayed, a further increase would run the risk of prejudicing their work. Secondly, the economic situation of the country at the present time must be taken into account. Circumstances since April and May 1957 to date have not changed so greatly as to justify an increase. Moreover no other people remunerated from the public purse who received a pay increase of 5% in April and May 1957 have yet received any further award. A further award to the doctors might well lead to claims for increases in remuneration of an inflationary nature from others and it remains just as important as ever to secure stability in wages and salaries.

Dr. Wand, Chairman of the B. M. A. Meeting, said: "Whenever we go to the Ministry the economic situation is wrong. We are always told we have missed the boat. We are either too early or too late. This is the old story."

Merit Awards for General Practitioners.—In the supplement to the *British Medical Journal* of July 12, Dr. J. F. Burdon, a general practitioner, said that recent suggestions that general practitioners should receive merit awards of the type given to some specialists prompt two questions. How is merit to be judged? And is it not already rewarded? No single satisfactory method of determining merit in the general practice has been found, but the meritworthy general practitioner, who undoubtedly does exist, is not without consolation. He is being paid to keep his patients healthy. If he is more successful at this than the next doctor, he thus attends less illness and gains more leisure or is able to care for more patients. The increase of work in the preventive field costs him much less in time and energy than the illness he prevents would have done, and he derives happiness and satisfaction from his work—things which he could not buy with extra income. Such qualities as kindness and patience cannot be measured, judged, or priced; yet how meritorious is the physician who has them. Such merit seeks no reward in cash.

MISCELLANY

THE DOCTOR'S PLACE IN PUBLIC AFFAIRS

Mr. Speaker, under leave to extend my remarks in the *Record*, I include the following address given on June 12, 1958, at the commencement exercises of Jefferson Medical College in Philadelphia:

President Kaufman, members of the graduating class, and of the faculty, alumni, and friends of Jefferson Medical College, it is indeed a great honor and privilege to be invited to speak at these commencement exercises today.

No one ever worked harder to get his medical degree than I, and no one ever appreciated it more. Occasionally someone before introducing me to an audience will ask, "What shall I call you—Doctor? Congressman? Honorable? or what?" I usually reply, "Just call me Doctor. I earned that one, and I will have it after the others are gone."

You who have just received your doctor's degree will find that your alma mater has equipped you well with all that any medical school can give its students in scientific knowledge and technical skills. I have no concern regarding the excellence of your medical training, or the high quality of your professional abilities. If there is reason for concern, it is more likely to be with regard to the quality of your citizenship. For that must be of a higher order than my generation has demonstrated or there may not long be a society in which you will have opportunity to use with success and satisfaction the knowledge and skills you have worked so long and hard to acquire here.

Our profession is going through the latest of several transitions it has experienced in the last century. Originally, the doctor's main concern was with therapeutics. Since he didn't know too much about disease processes, it really amounted to treatment of symptoms.

Then Loeffler discovered the diphtheria bacillus and Koch the tubercle bacillus. Virchow and others began doing systematic autopsies systematically. It was proved that most symptoms were the result of demonstrable pathological processes in various organs. The doctor began to shift his attention from results to causes, from therapeutics to diagnosis, from symptomatology to etiology.

This was the period in which I was trained almost 40 years ago. It was called the era of therapeutic nihilism. We concentrated our attention so much on the disease that we almost forgot the patient.

Then, with better understanding of how diseases were caused and communicated, a third emphasis naturally developed—preventive medicine. The good doctor had to be an expert not only with the stethoscope and the microscope, but with the immunizing needle.

In more recent years there has been an increasing recognition of the effects of mind and emotions on physiological processes—and vice versa. The doctors who only took care of physiological processes were losing too many patients to those who paid attention also to people's emotions, and gave them something to have faith in. Psychosomatic medicine belatedly came into its own.

Now we have entered a fifth stage in this gradual metamorphosis—the doctor must give more attention to public affairs, or he will lose his professional freedom. During the depression of the 1930's, the hot war of the 1940's, and the cold war of the 1950's, our Government steadily expanded until it now reaches into everybody's life and everybody's pocketbook almost every hour of every day. How and under what circumstances you are to practice medicine, what you are able to earn, how much of what you earn you are permitted to keep, and what you are able to do with what you retain, depend more than ever before on what happens in Washington.

But what happens in Washington depends more than ever before on what happens in Algeria, or Venezuela, or Korea, or Lebanon.

What happens in those places depends on what somebody decides in the Kremlin or Peiping.

And what they decide in the Kremlin or Peiping depends to a greater degree than we realize, I think, on what we say and do here in the United States.

Nobody needs to be apologetic about discussing political issues today. For unless we handle our domestic affairs in such ways as to maintain sound government, there is no gain—medical, social, or otherwise—that will long be worth much to anybody.

And conceivably, we could solve all our domestic problems—we could have better medical care more equitably distributed; we could meet our housing needs, our education needs, and our old-age security and labor-management problems—but unless we manage our political and economic relations with the rest of the world better than we have, so that we can prevent too frequent wars and too prolonged and exhausting expenditures for defense, none of the domestic gains can endure.

Your generation of doctors must play a more active role in public affairs for at least three reasons:

Extension of remarks of Hon. Walter H. Judd of Minnesota in the House of Representatives, July 7, 1958.

First, in order to ensure your future as doctors; to safeguard the conditions under which you can use to best advantage your knowledge of disease and your skill in helping the sick. What you are going to be permitted to do as medical men depends on what you do as citizens.

Second, in order to work toward betterment of environmental conditions that affect adversely your patients. The man who comes to you with arthritis or hypertension frequently has something else wrong with him too. Perhaps he has a boy in Communist hands in East Germany; or his business is in trouble; or inflation is eating up his life's savings; or he is apprehensive about atomic fallout and sputniks. He knows his country is in deep trouble. He has legitimate anxieties. If you are really going to help him with his ulcers, or his insomnia, or his hyperthyroidism, you will have to pay more attention to the impact on him of his world environment, and get yourself into a position where you can influence that environment in the direction of conditions more favorable to your patient's well-being.

Third, you have to pay more attention to public affairs in order to ensure your future as citizens. Before any of us are doctors, or businessmen, or lawyers, we are citizens of this Republic. All of us are, or will be, taxpayers. Most of us are parents. All of us are trustees of a great and noble heritage of freedom—trustees of a political and economic order which made it possible for even those of you who came from humblest circumstances, as did I, to get the expensive education which we could never have dreamed of obtaining in most countries of the world.

What we know as doctors about the practice of medicine should and must influence our thinking and our activities as citizens. But our obligations as citizens must also influence our thinking and conduct as doctors.

For example, doctors, almost to a man, are opposed to socialized medicine—by which term I mean tax-supported medical services provided and operated by the Government. Most people, I fear, assume that we oppose socialized medicine because it would hurt the doctors. They think we are a closed-shop union that wants to have complete control of medical practice in order to promote our own selfish interests. We failed to show the public that our opposition to socialized medicine is not because it would hurt us, but because it would hurt the public.

As a matter of fact, socialized medicine wouldn't hurt most doctors financially. The superior doctor can get ahead under any system. The poor or even the average doctor would probably be about as well off financially under socialized medicine as under free competition. Furthermore, he wouldn't have to worry. He could get a fairly well-paid, Government-supported job right after internship and continue in it for the rest of his life.

So, it is not because we are doctors that we oppose socialized medicine; it is because of what we know as doctors about the practice of medicine.

The public has been taught to believe, by those who are more active in public affairs than we, that socialized medicine would give more and better medical care for less cost. Doctors know it would give less and poorer medical care for greater cost.

Doctors know that there are at least three essentials to good medical practice, all of which would be lost under socialized medicine.

First, the relationship between the patient and the doctor must be wholly voluntary on both sides. It has to be completely voluntary on the part of the patient, or she is not going to have full confidence in the doctor. It has to be completely voluntary on the part of the doctor or his heart is not fully in it. Under government management the relationship cannot be wholly voluntary. It is the patient who will suffer, not the doctor.

A second requirement is that there be complete privacy and no intermediary between the patient and the physician. When the doctor gets paid by the patient, the doctor works for the patient. When the doctor gets paid in part or whole by the government, then little by little he comes to work for the government. Again, the doctor may be better off, but God help the patient.

Under socialized medicine the government becomes an intermediary in another sense. Since public money is involved, a succession of clerks has to go through the records to see if the doctor did any unnecessary tests that ran up the bill. Somebody in a government bureau has to decide whether the doctor's diagnosis and treatment, and therefore his charges, were proper. In order to do that, the government employee has to read the patient's history. Most patients are not too eager to tell their doctor all the personal and private details that he needs to know in order to treat them properly, if the patient knows some bureaucrat is also going to be reading all those details.

What kind of care will the patient get with both his doctor and the government managing his case?

A third essential for good medical practice is that there be maximum incentives for the doctor to do his best, to get ahead, constantly to improve himself. One such incentive is financial reward in accordance with his ability and his effort. In every

profession there are some individuals who have "self starters." Regardless of financial compensation or any other considerations, they give everything they have. But such persons are probably in the minority in our profession as in others. Most men work harder and do better if they believe that will get them ahead financially.

Another major incentive is professional recognition and advancement. You want the respect and confidence of your patients—and you will work hard to win it. But even more to be coveted is the respect of your colleagues. The most rewarding thing that can come to any one of you is to be known as a doctor's doctor. Some of you may be able to fool your patients with a high-powered personality and a smooth bedside manner; but you can't fool your colleagues. Other doctors will bring themselves or their relatives to you, only if you become really good.

Both of these powerful incentives—financial reward and professional recognition—are largely killed under governmental management where promotions are made on the basis of seniority—or, as it is sometimes called in Washington, senility.

What is necessary to get ahead under the bureaucratic system? The first essential is to live long enough. The second is to make no enemies. And what is necessary to make no enemies? The main requirement is not to have any new ideas. If it is a good idea, it makes your superior resentful—why didn't he think of it first? And he holds up your promotion. If it is a bad idea, that also reflects on him as your superior, and he holds up your promotion. So don't do your best to get ahead by hard work and creative effort—just conform. That is fatal in our profession as in every other.

All these things that we know as doctors make us oppose socialized medicine. But it is not enough for us to be right. We must tell and sell our reasons to the public far better than we have. We can't do that by just talking to each other at medical meetings. We don't need to convince each other. We have to reach the public and the politicians, not to put something over on them, but to help them understand the situation so that no one else can put something over on them.

But doctors must play an even larger role in public affairs. Who else can so well understand, and contribute so much to helping other citizens understand, the malignant nature of the Communist process which has spread its blight over one-third of the world and threatens the remainder, including our own free America. If we fail here, we fail everywhere.

For there is on this planet a conspiracy dedicated to our destruction. The heritage of freedom which enabled you to get where you are today, and will permit you to decide tomorrow where, how, and with whom you are to practice, and what organizations you are to join, ranging from medical societies to political parties—that heritage is under cold, determined, and increasingly successful attack on every front.

You know that the thing that makes a cancer bad is not its size or its location; it is the lawless way it grows. In practically all respects, the Communist movement behaves like every other malignancy. It has rejected the normal laws of growth, and expands by lawlessly encroaching on tissues that don't belong to it. Sometimes it is by direct invasion of an adjacent organ or country like Finland, Korea, Hungary. Or it extends more stealthily by metastases into other organs, transplants of lawless cells working within other countries to disrupt their economy, subvert their thinking, weaken their institutions, in preparation for take-over.

To deal successfully with the present malignant threat to our survival, how urgently our country needs the kind of mind which your medical college has given you.

First, the autopsy type of mind. You have been trained to study the mistakes of the past and admit them openly, in order to learn from them. The doctor does autopsies not to cover up, but to correct. In government, the prevailing rule is not to correct, but to cover up. Every summit conference to which we have gone since World War I without careful and thorough agreement on essentials, in advance, has led to disaster. Yet how many people in public affairs today, without your kind of mind, are urging our government to try once more the same pattern that has always failed.

We also need in public affairs more men with the biopsy type of mind. When you look through a microscope and see some abnormal cells that have broken through the basement membrane in violation of normal laws of growth, you don't say "Well, it's cancer all right, but it's down in the big toe. Let's wait and see if it spreads." You know it will spread unless you find ways to stop it at once and where it is. But during the last two decades, how many among our people said, "Isn't it too bad what Hitler is doing to the Jews, or the Japanese are doing to the Chinese, or the Communists are doing to the Hungarians? But after all those places are a long way off. Let's see if we can't persuade the lawless elements to confine their efforts to the areas presently involved, and not spread to us."

The doctor knows that in dealing with a malignant process, there can be no end to the struggle until one or the other prevails. That does not mean that we must drop bombs on it. It does mean that as a minimum we have to get and keep it isolated by cutting off its sources of supply, and its means of communicating its lawless cells to other areas. It means we must prevent its winning new victories, such as expanded trade or being received into respectable society, or diplomatic recognition would be.

While fighting the malignant process, the doctor knows that he must also build up the strength and health of the parts—the countries and the peoples—that are still free. We can't win by just outwaiting the enemy; we must outwork him.

You have been taught that almost the only unforgivable mistake for a physician to make is to underestimate the possible seriousness of a patient's complaint. If you overestimate it, you are guilty of nothing but a little undue caution. But if you underestimate it, the patient may be dead. The mistake is unforgivable because it is irretrievable.

Likewise, in the world struggle between lawless and law-abiding forces, it would be an unforgivable mistake to fail to understand the malignant character of the Communist new growth—or to underestimate its strength, its determination, the dangerous inroads which it has already made into the organs of our Nation and the thinking of our people, without their realizing it. We must not make that mistake ourselves—and it is our duty not to let our fellow citizens make it. Please God, we will all wake up to the seriousness of the threat before it is too late.

But there is another mistake we must avoid: We must not underestimate the strength of our own philosophy and faith—the basic soundness of the American system and its attraction and appeal to the oppressed millions of the earth.

What the world generally wants most from the United States is our wealth, our goods, our tools. But those are not what it needs most—for those are all results. What the world needs most from us is the secret that produced those results.

The secret of our wealth is an economic system which provides opportunity and incentive for men to get ahead, to create, to produce, to expand.

That economic system came from a political philosophy—the right of the individual.

That political philosophy, in turn, came from a religious faith—which put first the dignity and worth of every human being as a child of God.

We will not succeed in preserving the material results unless we revitalize and strengthen the spiritual roots from which they came.

In short, we shall have to demonstrate as strong and deep a faith in our faith as the Communists have in theirs—and we shall have to work as hard and as skillfully to spread the truth as they work to spread their falsehoods.

We must work both as individuals and as members of groups which we join and support because they are dedicated to the causes in which we believe—religious groups, civic groups, political groups.

So often one finds doctors unwilling or too preoccupied to work in political organizations. Yet if you are to expend your influence in public affairs, you must participate in politics, for politics determines government—and government today determines the conditions of your lives.

Therefore, join up with the political party that you think is nearest right on the most important issues. You won't agree with it on everything, any more than you agree on every issue with your fraternity, or your medical society, or even with your wife. But you don't pull out of those associations whenever you disagree. Rather, you try to move them in the direction you believe is right.

Just so, associate yourself with the party with whose principles and programs you find yourself in closest agreement, and work in and through it to select, and then to elect, good men and women to public office at every level of government.

In addition, more doctors have to be willing to be candidates for public office. That's tough, I can testify. But both patriotism and good sense require that all of our citizens, no matter how specialized their training, be willing to sacrifice their careers to go into public service in peacetime, just as their sons are called upon to sacrifice their careers to go into the armed services in wartime.

Only as we do these things—not just discuss them, but act—will there be hope. The most wonderful thing about our country, the thing which we must preserve at all costs, is the privilege we have of changing the things we don't like. Thank God our system is such that whenever conditions are bad, or don't meet our standards, we can correct them—if we will work in public affairs.

The way to begin is with ideas and principles, then get persons and parties committed to them, translate them into programs, and put them into practice.

Please don't think I am trying to lecture you today or imagine I have all the answers. Rather I am appealing to you for help. This world patient is too sick to be cured without the intelligent and dedicated effort of all of us. It particularly needs the leadership of men and women who have the qualities of mind and heart of the good physician.

The tests ahead will be harder than those you have just completed. But who is so well equipped to mold the attitudes and actions of our people as you who leave the classrooms and clinics of historic Jefferson Medical College today to take up your roles throughout our land as doctors, as citizens, as trustees—strong, well trained, confident, competent.

I congratulate you, your families, the communities into which you go—and our country.

THE LEISURE CORNER

MOTORING

Doctors, particularly those in nonmetropolitan areas, often spend as much as half their time behind the wheel of their cars. Few, however, will say that they regard driving, in its routine everyday sense, as a pleasure. Vacation driving is something else. Like everyone else, the doctor looks forward to the temporary escape from professional problems and personal vexations, and, although it adds to the already abundant mileage recorded on the speedometer, one might advance the proposition that vacation driving can be fun. Whatever its other consequences, the automobile has enabled us to see, in a short period of time, many scenic wonders an earlier generation could not know. Can driving be anything but a pleasure as one motors down route 20 in upstate New York and looks out over the green expanse of the Mohawk Valley? Or perhaps the physician will find himself this summer on the picturesque coastal road that links Los Angeles with San Francisco. There, to his left, overlooking the Pacific, he will see the jagged cliffs of Monterey Peninsula and, to his right, the breath-taking sight of multicolored flowers growing wild along the road; yet, it is the rare motorist who regards all vacation driving as fun and frolic.

There is the ubiquitous careless driver, darting from lane to lane without bothering to use hand signals and the highway jam-up in which one inches along bumper-to-bumper, threatened by a hissing radiator; and who has not, at one time or other, joined with Ogden Nash to lament: "I think that I shall never see a billboard lovely as a tree. Indeed, unless the billboards fall, I'll never see a tree at all."

There is another possible deterrent to pleasurable driving which is too often overlooked, and doctors, strangely enough, are as derelict about it as the next man. Like the shoemaker's daughter wearing the worst possible shoes, doctors often tend to forget the elementary principles involved in lessening driving fatigue. A common cause of accidents, fatigue is one of our most subtle highway killers. Ask a physician what he would do if he felt listless while driving, and chances are he would say that he would pull over and rest, but put the same doctor to the test on the highway, and, more often than not, he becomes the "average" motorist, eager to "get there" and willing to exceed his physical endurance to do so. He will succumb to the dubious lure of roadside hot-dog stands in a way that would arouse his fury if one of his patients showed the same lack of "moderation." Fatigue, a symptom the average physician encounters every day, has also engaged the attention of other groups. Reports by the Eno Foundation, the American Automobile Association, and the U. S. Public Health Service have all confirmed its importance in highway accidents. Experiments at Cornell University focused on the special question of proper seating. They revealed the importance of sufficient elevation to give the driver a proper command of the road.

Another study on seating conducted by the Market Forge Company of Everett, Mass., uncovered the fact that drivers who were given automobile seats designed for postural support were much less fatigued after sitting at the wheel for a number of hours than drivers using the accustomed deep soft seats put out in Detroit. On the basis of this study a posturally correct automobile back-aide with adjustments to fit it to individual body contours has been produced. As already suggested, periodic rest, proper diet, and correct seating are methods of counteracting driving fatigue that are well known to doctors, but there are other less obvious techniques for avoiding the fatigue hazard. Chewing a great wad of gum, for example, may seem a bit indelicate to one's vacation companions, but truckers and taxi drivers find that it's an inexpensive antidote. The fatigue induced by "highway hypnosis," the special bane of superhighway motorists, can also be controlled. Experienced commercial drivers recommend moving one's eyes about often instead of keeping them in a fixed stare. This requires a concentrated effort which militates against fatigue.

Driving can also be tied in with the pleasant pastime of singing to keep drowsiness at bay. The lost art of conversation might also be dusted off, both for its inherent value and for its special benefit in keeping the vacation traveler alert. Of the 28 million Americans who are driving the nation's highways this season, a fair percentage are doctors. Those who seek out the pleasures of motoring and who accept the responsibilities will find it a rich and rewarding experience. They will return from their sojourns with minds and bodies refreshed, once again ready to serve their fellowmen.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Rheumatic Carditis Following Commissurotomy for Mitral Stenosis. I. S. Golubev. Klin. med. 39: 73-79 (May) 1958 (In Russian) [Moscow].

The author reports a follow-up on 27 patients who were operated on for mitral stenosis of rheumatic origin. The period of observation varied from 6 to 26 months. Active rheumatic carditis before the commissurotomy was suspected in 2 patients. The rest of the patients presented no signs of active rheumatic process. Histological studies of tissue from the left auricle, however, revealed in 13 patients the presence of fresh Aschoff nodules. Apparently, rheumatic carditis in 11 patients was undetected. The operation caused exacerbation of the carditis in 2 patients in whom the rheumatic process manifested itself in a definite clinical picture. None of the patients who were operated on developed recurrence of the mitral stenosis. The postoperative course of patients with active, but not detected, rheumatic carditis was not worse than that of patients who did not have signs of active rheumatic carditis. The operation of commissurotomy resulted in pronounced improvement in 28 patients. In this group there were 11 patients with undetected rheumatic carditis.

Studies on Influenza: Experience with the Far East Strain. E. De Maeyer, P. Denys and P. De Somer. Acta clin. belg. 13:109-124 (March-April) 1958 (In French) [Brussels].

At regular intervals new strains of type A influenza virus, immunologically distinct from the previous ones, strike unprotected populations. This past year a new strain—the Far East strain—appeared, which rapidly invaded the whole world. After a general survey of influenza, the authors present their experience with the type A/Singapore/1/57 virus. 1. The inoculation of material obtained at the beginning of the disease permitted the isolation of the virus in 12 out of 14 patients. Between the 5th and 10th days of illness the isolation was successful in only 1 patient out of 4. Several successive fatal cases were observed. In 1 patient with influenzal encephalitis the virus was isolated from the autopsy material. This could indicate the acquisition of neurotropic properties by the influenza virus. 2. The evolution of the antibody titers was followed by the complement-fixation and hemagglutination-inhibition tests. A significant rise in the antibody levels was generally noted in convalescent individuals. Hemagglutination-inhibition antibodies attained a mean titer of 1:320 between the second and the third week after the beginning of the disease. This titer was lowered to 1:80 after the 10th week. 3. An experimental vaccine was prepared on chicken embryos. The virus was precipitated by the addition of protamine sulfate. The virus-sulfate mixture was washed several times, suspended in a phosphate-buffered solution, and finally inactivated by formol. The titer of this vaccine was 1:320, and its nitrogen content was 50 mg. per liter. 4. When it was administered to 1,000 individuals, the vaccine caused mild allergic reactions in 5% of the patients. Determinations of antibody levels were made 8 or 9 days after vaccination. By mixing different dilutions of serum with different dilutions of virus, it was shown that the complement fixators were parallel to the neutralizing antibodies. These mixtures were inoculated in the allantoid cavity of chicken embryos. The serum of vaccinated subjects gave a protection as good as that given by the serum of convalescents.

Osmotic Diuretic Treatment of Refractory Edema. L. M. Bernstein, B. Blumberg and M. C. Arkin. Circulation 17:1013-1020 (June) 1958 [New York].

Six patients with refractory edema, caused in 2 by congestive cardiac failure, in 2 by nephrosis, and in 2 by cirrhosis, were given intravenous injections of large doses of mannitol to test the effectiveness of osmotic diuretics in edema refractory to other diuretic therapy. The drug was given in doses varying between 100 and 475 Gm. in 8 hours. Whatever the previous levels of sodium, chloride, and water excretion, the administration of mannitol markedly increased those levels of excretion. Combined administration of mercaptomerin (Thiomerin) and mannitol was much more effective than either alone in increasing excretion of sodium up to 660 mEq. per day and water up to 8,685 cc. per day and in causing weight (edema) losses, whether the edema

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The place of publication of the periodicals appears in brackets preceding each abstract.

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was of renal, cardiac, or hepatic origin. Weight losses which were negligible to very large occurred, being determined by both excretion and simultaneous intake. Diuretic responses were not necessarily accompanied by clinical benefit. The excretions were not accompanied by clinically significant alterations in serum electrolyte concentrations.

These data demonstrate conclusively the ability of an osmotic diuretic to markedly increase the urinary excretion of water, sodium, and chloride in patients with refractory edema. The increased effectiveness of the combination of an osmotic and a mercurial diuretic probably can be explained by their known different actions. Mannitol, by its water-retaining and sodium-diluting action, decreases the numbers of sodium-absorbing sites of the tubular cells that are exposed to sodium; mercaptomerin reduces the avidity of each of these decreased numbers of sites for sodium resorption. The combined effects result in great proximal tubular rejection of sodium and accompanying anions. The mannitol infusion caused pulmonary edema during the osmotic diuresis in the 2 patients with cardiac edema; this hazard must be recognized, and it may be minimized by use of adequate doses of urea or other osmotic diuretics that are distributed throughout body water rather than extracellular fluid alone. Marked diuresis was followed by early signs of central nervous system symptoms of hepatic insufficiency in 1 of the patients with cirrhosis. In 1 patient with Laennec's cirrhosis and in 1 with the nephrotic syndrome of lupus erythematosus, diuresis failed to occur because of both inadequate dosage and markedly reduced filtration rates. The clinical value of osmotic diuretics must be determined by additional studies. The use of (physical) osmotic diuretics in large adequate doses in combination with (metabolic) tubular-cell sodium-resorption blocking diuretics should be considered when edema states are refractory to all other diuretic therapy.

Hypoxia of Abnormal Physiologic Origin as the Final Common Pathway in Gastroduodenal Ulcer Genesis. E. D. Palmer and J. L. Sherman Jr. A. M. A. Arch. Int. Med. **101**:1106-1117 (June) 1958 [Chicago].

The anatomy, physiology, pharmacology, and pathology of the gastroduodenal arteriovenous shunt system are reviewed in the discussion of hypoxia as the final common pathway in gastroduodenal ulcer genesis. The discovery of the gastroduodenal shunt system proffers an explanation for local hypoxia and tissue necrosis which has a physiological basis and is an explanation that does not depend on an already existing pathological process in the gastroduodenal wall. It is now possible to satisfy one of the most important criteria for any satisfactory theory of ulcer genesis, that the mechanism must permit the crater to be the result of an abnormal functional activity. The crater is merely a local manifestation of a systemic psychovisceral process, and in observing the great incidence of ulcer and the notable propensity of the lesion to repeat over and over the cycle of healing and breakdown, one becomes convinced that the final common pathway is a physiological process gone wrong. Vascular theories of ulcer etiology are very old, but until the native arteriovenous shunts were discovered, no reasonable mechanism could be postulated which could meet the most basic of the criteria for a proper etiological explanation, that the crater could form as a result of a physiological, not a pathological, excess or deficiency. It is proposed that the shunt mechanism, probably through induction of mucosal plethora rather than ischemia, supplies a reasonable explanation for hypoxia depression of mucosal vitality, the first step in crater formation.

Fulminating Post-Influenzal Pneumonias. H. A. Buechner, J. Thompson and W. H. Mosby. J. Louisiana M. Soc. **110**:184-191 (June) 1958 [New Orleans].

During the last 5 months of 1957, 100 patients were treated for pneumonia, exclusive of those patients in whom pneumonia was considered to be a terminal event in the course of some other fatal disease. The average mortality rate from pneumonia in the 3 previous years was 8%, while in 1957 the rate rose sharply to 22%. The increased incidence and the unusual severity of these cases were directly related to influenza, since 54 of the 100 patients gave a recent prior history of "flu" or a "flu-like" illness. The Asian strain of type A influenza virus was isolated in 3 of the patients, and the hemagglutination-inhibition antibody titer was significantly elevated in 2 others. Twenty-four patients had pneumococcic pneumonia, 12 had staphylococcic pneumonia, and 6 had pneumonia due to Klebsiella pneumonia. The specific etiological agent could not be positively identified in the remaining cases, although Pseudomonas aeruginosa, Aerobacter aerogenes, Escherichia coli, and beta-hemolytic streptococci were suspected as representing the causative organism. The incidence of Friedländer's pneumonia and pneumococcic pneumonia was similar to that recorded for the year 1955. There was a decided increase in the incidence of cases of staphylococcic pneumonia over previous years. Staphylococci were further identified in mixed flora in 38 of the cases in which the specific etiology could not be determined. A history of influenza was disclosed in 17 of the 22 deaths recorded, although the Far East strain was isolated in only 2 instances. Nine patients died of staphylococcic pneumonia, 1 died of Friedländer's pneumonia, and 1 died of pneumococcic pneumonia; the exact type of pneumonia was unidentified in

the remaining 11 patients. In those instances in which sensitivity studies were accomplished, the organisms were found to be highly resistant to all the available antibiotics. The fulminant nature of these pneumonias is attested by the fact that 4 patients died in less than 24 hours after admission, 15 died in less than 5 days, and the average duration of life after admission was 7.5 days. The most common bacterial pathogen was staphylococcus pyogenes var. aureus, which accounted for one-third of the deaths. Most of the deaths occurred in the 41-to-75 age group, only 2 deaths occurring in persons less than 40 years old. All save 2 patients in this series were reported as suffering from some type of chronic disease. Those patients with the severest infections tended to exhibit leukopenia, and a few showed neutropenia, while leukocytosis was an uncommon occurrence. Leukopenia in the presence of these severe infections is regarded as an ominous prognostic sign.

Acute Benign Pericarditis: Report of Two Cases Associated with Group A and Group B Coxsackie Viruses. E. R. Movitt, E. H. Lennette, J. F. Mangum and others. New England J. Med. **258:**1082-1086 (May 29) 1958 [Boston].

The association of "idiopathic" or acute benign pericarditis with diseases of known viral etiology has led to the suspicion that at least some cases of pericarditis may be of viral origin. This suspicion was suggested by recent reports, in which Coxsackie viruses were linked to several cases of acute myocarditis. The authors present 2 patients with pericarditis who were found to have infection due to a Coxsackie virus. The patients were men, aged 22 and 72 years respectively. Both patients showed a clinical picture that is usually recognized as the so-called benign or idiopathic pericarditis. In case 1 a Coxsackie virus identified as group B, type 3, was isolated from the stool, and a rise in neutralizing antibodies was demonstrable in the patient's serum against this type of virus. In case 2 a Coxsackie virus identified as group A, type 1, was recovered from the stool, and a rise in neutralizing antibodies against this particular virus type was also demonstrable.

Although a rise in antibody level to the infecting virus type was demonstrable in both patients, in neither was the rise of the magnitude generally regarded as "diagnostically significant." The "acute-phase" blood specimens in both patients already possessed comparatively high levels of neutralizing antibodies—that is, if the "acute-phase" specimen had been obtained earlier in the disease, a much greater rise in antibody titer during the course of the illness would most probably have been demonstrable. The fact that a Coxsackie virus was isolated from these patients, together with the fact that some increase in neutralizing antibody levels to the infecting virus type was demonstrable, is interpreted as evidence incriminating Coxsackie viruses of group B, type 3, and group A, type 1, as the etiological agents responsible for the pericarditis in the respective patients. Although the Coxsackie viruses enjoy an ubiquitous distribution and not infrequently can be recovered from persons without evidence of illness, there is ample evidence that these viruses have an etiological role in human disease. Additional etiological studies, however, will be required to indict, definitively and unequivocally, the Coxsackie viruses as incitants of acute benign pericarditis.

The Clinical Significance of Serum Cyanocobalamin (Vitamin B_{12}) in Liver Disease. M. Rachmilewitz, J. Aronovitch and N. Grossowicz. A. M. A. Arch. Int. Med. **101:**1118-1128 (June) 1958 [Chicago].

In this series the serum cyanocobalamin values were correlated with the common liver-function tests and particularly with the degree and duration of bilirubinemia, where it appeared that the estimation of serum cyanocobalamin might serve as an early and sensitive test for differentiating the various types of jaundice. There were 37 patients with viral hepatitis, comprising a heterogeneous group of adult immigrants from Israel with poor nutritional backgrounds, 1 patient with acute yellow atrophy of the liver due to phosphorus poisoning, and 14 patients with portal cirrhosis, 5 of whom showed clinical and laboratory signs of active hepatitis. Six patients were in the advanced stage of portal cirrhosis in decompensation, the remaining 3 having a compensated portal cirrhosis. The total serum cyanocobalamin value was estimated by the modified Escherichia coli assay.

In patients with acute viral hepatitis there was no definite correlation between the high initial serum cyanocobalamin values and the degree of bilirubinemia, as concentrations of cyanocobalamin 10-to-20-fold greater than normal were associated with moderately elevated serum bilirubin concentrations, while only moderate elevations of serum cyanocobalamin levels were found in patients with marked bilirubinemia. An exceptionally high serum cyanocobalamin concentration was found in a fatal case of acute yellow atrophy of the liver due to phosphorus poisoning. Five patients with portal cirrhosis, showing findings of active hepatitis manifested by jaundice and severely altered hepatocellular liver function, had markedly elevated cyanocobalamin values. The 6 patients with advanced portal cirrhosis, who had clinical signs of portal hypertension but no evidence of active hepatitis, had cyanocobalamin values lower than those in the previous groups. Normal cyanocobalamin values were found in the remaining 3 patients with compensated portal cirrhosis, while higher values were

demonstrated in 5 of the 6 patients with biliary cirrhosis who were all jaundiced, were in the advanced stage of the disease, and showed laboratory evidence of hepatocellular damage. The remaining patient in this group who was not jaundiced and showed no evidence of hepatocellular damage had normal cyanocobalamin values on 2 examinations. In patients with jaundice due to bile-stone obstruction with evidence of ascending cholangitis, the cyanocobalamin values ranged from 160 to 725 micromicrograms per milliliter, the higher value being found in a patient with carcinoma of the head of the pancreas. Two patients with chlorpromazine-induced jaundice, in whom the clinical and laboratory manifestations were characteristic of obstructive jaundice with hepatocellular damage, had normal serum cyanocobalamin values.

Chlorpromazine Jaundice: Clinical Course, Hepatic-Function Tests, and Pathologic Findings—Summary of Twenty Cases. W. F. Gebhart, R. A. Van Ommen, L. J. McCormack and C. H. Brown. A. M. A. Arch. Int. Med. **101**:1085-1093 (June) 1958 [Chicago].

The incidence of jaundice in patients treated with chlorpromazine has been reported to be as low as 0.2% and as high as 5%. The resulting liver disease is regarded as a benign and self-limiting condition that can be relieved merely by withdrawing the drug, although in some instances the duration of jaundice and of abnormal results of liver-function studies may be protracted. Concomitantly, there may then develop extreme changes in lipid metabolism, which, in turn, are capable of producing hepatohypercholesteremic cirrhosis, or primary biliary cirrhosis. The mechanisms by which chlorpromazine produces a rather specific type of liver disease are not known, notwithstanding the resemblance in the liver to those changes caused by arsphenamine, thiouracil, methyltestosterone, and substances of similar chemical structure. The major feature of this entity is an intrahepatic obstruction to the flow of bile.

The likeliest explanation for chlorpromazine-induced jaundice would seem to be on the basis of an allergic mechanism, which results eventually in intrahepatic cholestasis and bile-plugging. This explanation is supported by the presence of a latent period between the institution of therapy and the appearance of clinical jaundice or changes in the results of hepatic-function tests, or both. The not infrequent occurrence of a peripheral eosinophilia and of the periportal eosinophilic filtrate noted on biopsy lends favor to the possibility of an allergic mechanism. Shay and Siplet in careful studies on 47 patients treated with chlorpromazine found the serum alkaline phosphatase determination to be the most sensitive means of detecting early sensitivity reactions to chlorpromazine.

Twenty cases of chlorpromazine-induced disease of the liver have been studied in which the daily patient dosage ranged from 30 to 150 mg. Seventeen patients received 75 mg. or less. The duration of administration of the drug ranged from 2 to 28 days, 8 patients having received the drug for less than 20 days, 9 having received it for 20 to 30 days, and 3 having received it for 42, 49, and 58 days respectively. In most of the patients, none of whom were known to have previously had liver disease, jaundice developed between 2 and 4 weeks after administration. Fourteen of these patients exhibited an "influenza-like" syndrome, with chills, varying degrees of fever, malaise, nausea, and generalized muscular aching prior to the onset of jaundice. Coincident with, or shortly thereafter, 16 patients experienced a moderate-to-severe degree of generalized pruritus. Eleven of the patients reported some degree of right upper quadrant pain or epigastric abdominal distress, although none described the "classic" pain of biliary colic. A relative eosinophil count of greater than 8% was found in 8 patients, the highest noted being 30%. Repeated cephalin-cholesterol flocculation tests in 19 patients were negative, the zinc sulfate turbidity test was normal in all 10 patients in whom the test was utilized, and the thymol turbidity test yielded slightly elevated values in 6 of 20 patients studied. Total serum protein, serum albumin, and serum globulin determinations obtained in all patients were normal in 17 patients, 3 of them exhibiting slight reversal of the albumin-globulin ratio. The duration of jaundice and of abnormal results of hepatic-function studies varied in length from 8 days to 10 months (2 cases).

Insofar as liver-cell morphology is concerned, the absence of necrosis is 1 of the major features in differentiating chlorpromazine jaundice from viral hepatitis, necrosis having occurred in only 1 of the 15 patients evaluated. The absence of bile in the large ducts—found in all of the patients—is the major differentiating factor between chlorpromazine-induced liver disease and obstructive jaundice of large bile duct origin. Capillary bile thrombi were found among the liver-cell cords in all specimens, although bile duct proliferation of small hepatic ducts of small degree was found in only 3 specimens. Treatment in all 20 patients was the same as that administered for cirrhosis: high-carbohydrate and high-protein diet, bed rest, and large doses of supplemental vitamins, especially the B complex. Steroid therapy was found to be ineffective in 5 patients. Although it is difficult to evaluate the effectiveness of this therapy in the 20 patients, it is believed that treatment of this condition should parallel that of hepatitis, as it should at least minimize damage to the liver from the obstructive jaundice itself.

Hemopancytopenic Medullary Erythroblastomatosis. G. Paniagua, J. Sánchez Fayos and H. Oliva. Rev. clín. españ. **68**:356-362 (March 31) 1958 (In Spanish) [Madrid].

Hemopancytopenic medullary erythroblastomatosis is extremely rare. Rohr described a case under the term "diffuse medullary erythroblastoma." The case reported by the authors is the second in the literature. A man, 47 years old, reported to the hospital, complaining of gastric disorders and of having had for the last 2 months asthenia and rapid loss of weight. Examination of the peripheral blood showed a picture of pancytopenia, hypochromic anemia, and erythromegaloblastemia. The bone marrow obtained by sternal puncture showed erythropoietic hyperplasia with a pronounced proliferation of erythrogigantoblasts approaching the type of neoplastic cells. Therapy with liver extracts, vitamin B_{12}, iron, and blood transfusions was ineffective. The patient rapidly grew worse and died in 3 months. The disease is a malignant form of idiopathic erythremic myelosis with exclusive medullary localization, which interferes with normal hematopoiesis and which is entirely different from erythroleukosis and from either symptomatic or primary chronic leukoerythroblastosis.

Nonsyphilitic Interstitial Keratitis and Bilateral Deafness (Cogan's Syndrome) Associated with Cardiovascular Disease. B. Eisenstein and M. Taubenhaus. New England J. Med. **258**:1074-1079 (May 29) 1958 [Boston].

Nonsyphilitic interstitial keratitis with vestibuloauditory symptoms was first recognized as a clinical entity by Cogan in 1945. This syndrome usually occurs in young adults and is of sudden onset, initiating with either the ocular or the aural manifestations. The vestibuloauditory symptoms are similar to those seen in Ménière's syndrome and consist of sudden onset of vertigo, tinnitus, nausea, vomiting, and rapid development of deafness. With the appearance of deafness, which is often complete, the vestibular symptoms subside. The ocular findings are often much less dramatic, and the date of onset may be established only in retrospect. The patient may have lacrimation, sensation of a foreign body present, blurring of vision, and blepharospasm. Of great interest is the association of this syndrome with systemic disease, in particular of the cardiovascular apparatus.

The authors present the histories of 3 patients with Cogan's syndrome, who were observed at the Michael Reese Hospital in Chicago in recent years. In the first patient an aortic insufficiency due to a valvulitis developed after the onset of the eye-and-ear symptoms. The valvulitis led to valvular aneurysm formation, perforation of an aortic cusp, congestive heart failure, and death. Autopsy revealed a healed endocarditis, with unusual fibrinoid degeneration of the aortic valves, as well as arteritic changes in the small branches of the coronary arteries that had led to multiple small infarctions of the myocardium. The history of the second patient had been described previously by Oliner and co-workers, and the account given here was a 7-year follow-up study. In this patient the vestibuloauditory and corneal involvement was followed by an extensive necrotizing angiitis, which subsided after a stormy course and left no apparent residual damage to the cardiovascular system. The history of the third patient is of interest, because an interval of almost 2 years elapsed between the onset of the keratitis and the auditory symptoms. Except for undiagnosed transient pulmonary findings, no systemic manifestations could be proved. Reviewing the literature, the authors call attention to the frequency of cardiovascular disease, which suggests that Cogan's syndrome may represent a part of a more generalized disease in which the heart and the small vessels may become involved.

Pulmonary Hypertrophic Osteoarthropathy (Periostitis): Its Absence in Pulmonary Tuberculosis. A. B. Skorneck and L. B. Ginsburg. New England J. Med. **258**:1079-1082 (May 29) 1958 [Boston].

Clubbing and hypertrophic osteoarthropathy usually reflect disease in the lungs. Under some concepts of etiology, the osteoarthropathy is regarded as simply an advanced response of tissue to the same stimulus that causes clubbing. This "unified" theory has tended to obscure real differences between clubbing and hypertrophic osteoarthropathy. The authors apply the term "pulmonary hypertrophic osteoarthropathy" to the roentgenographically demonstrable changes of bone and soft tissue that occur in association with, or as a result of, pulmonary disease. These changes are distinct from the physical findings of clubbing, a term that should apply only to the soft-tissue and nail alterations in the fingers and toes. Clubbing is frequently observed in patients with many varieties of pulmonary disease and is occasionally found in other chronic states not related to primary lung disorders. It rarely produces symptoms and is usually discovered on routine physical examination. Pulmonary osteoarthropathy, on the other hand, may cause symptoms ranging from mild aches to severe pains in the region of the affected bones and nearby joints; it is not detected unless it is symptomatic, and the examining physician is then curious enough to obtain roentgenograms of the affected part.

If pulmonary osteoarthropathy were simply a more advanced stage of the same process that causes clubbing, one would expect that among tuberculous patients with advanced disease and pronounced clubbing the roentgenographic fea-

tures of pulmonary osteoarthropathy would be manifested at least occasionally. Roentgenograms were made of the hands, including the distal part of the radius and ulna, in every patient admitted to the tuberculosis building of the West Haven (Conn.) Veterans Administration Hospital. Over a period of 3 years, 390 newly admitted patients were examined. It was found that no patient with active tuberculosis had pulmonary hypertrophic osteoarthropathy. Three cases of pulmonary osteoarthropathy were uncovered incidentally during this period of observation among a number of patients who were admitted to the hospital with a presumptive diagnosis of pulmonary tuberculosis. It is interesting that none of the patients with pulmonary osteoarthropathy actually had tuberculosis. The final diagnoses were lung cancer in 2 patients and pyogenic abscess in 1. Rarely, pulmonary osteoarthropathy may develop in complicated thoracic tuberculosis, such as empyema. Given a patient with pulmonary disease, the discovery of osteoarthropathy (periostitis) by x-ray examination of the extremities militates against a diagnosis of tuberculosis.

Suppurative Arthritis Complicating Rheumatoid Arthritis. J. H. Kellgren, J. Ball, R. W. Fairbrother and K. L. Barnes. Brit. M. J. 1:1193-1200 (May 24) 1958 [London].

The authors report on 12 patients, between the ages of 37 and 66 years, with rheumatoid arthritis in whom bacterial infection occurred in connective tissues and on 13 patients, between the ages of 7 and 67 years, with monarticular suppurative arthritis associated in most cases with trauma, penetrating wounds, or an obvious source of infection. These 25 patients were the only ones with suppurative arthritis among 91,815 patients admitted to the Manchester Royal Infirmary during the years from 1950 through 1957; these findings show the rarity of the condition. In 9 of the first group of 12 patients, the condition was a suppurative arthritis which was often polyarticular, resembling an exacerbation of the rheumatoid process. The infecting organisms were of the coliform group in 2 patients and were staphylococci in 10 patients, of whom only 3 were sensitive to penicillin. The febrile and leukocytic response to infection with these organisms was often modified or absent, and in some patients the widespread suppuration was revealed only by a systematic examination of the joints at autopsy. Five of the 12 patients with rheumatoid arthritis died, while not 1 patient of the 13 with suppurative arthritis died. It seems that the prognosis can also be much improved in the first group, provided that the correct diagnosis of suppurative bacterial infection is made at an early stage and the infecting organisms can be cultured from either the blood or the infected joint fluid, so that their sensitivity to the available antibiotics can be assessed.

The diagnosis in the second group presented no difficulty, since the symptoms conformed to the classical description of monarticular suppurative arthritis. These patients responded promptly to the antibiotic therapy, and their illness never became serious. The most useful indication of bacterial infection was increased pain and swelling in several joints, accompanied by deterioration in general health and the occurrence of rigors or unexpected discharge of pus. Absence of the normal response to bacterial infection with pyogenic organisms presented a major difficulty. In some patients staphylococcic pus was present, the white blood cell counts were 4,300 and 5,800 per cubic millimeter, and the patients remained afebrile, while other patients had fever from the active rheumatoid disease, and it was only when the fever increased and became remittent that it became apparent that an infective process had supervened. Widespread infection of joints and bones should be suspected in any patient with rheumatoid arthritis in whom there is a sudden deterioration or an unexplained remittent fever, especially if a history of rigors can be elicited. Aspiration of all the more painful joints, with culture of the joint fluid, and repeated blood cultures are required, since this appears to be the only certain way of arriving at a correct diagnosis. If diagnosis can be made at an early stage, appropriate antibiotic therapy and energetic treatment can give excellent results in what may otherwise be a fatal condition.

Atypical Heat Stroke with Hypernatremia, Acute Renal Failure, and Fulminating Potassium Intoxication. C. R. Baxter and P. E. Teschan. A. M. A. Arch. Int. Med. 101:1040-1050 (June) 1958 [Chicago].

The persistance, after initial diagnosis, of injuries attributable to heat stroke indicates that treatment with intravenously or orally administered saline solutions alone may be inadequate to prevent further disability imposed by a heat load. Two vital principles in the treatment of heat stroke are the rapid reconstitution of the circulating blood volume and the rapid lowering of temperature. The potential volume of the vascular tree is greatly enhanced by cutaneous and muscular dilatation to the extent that large quantities of salt and water are necessary to meet the discrepancy between the existing blood volume and the expanded vascular space. The rapid dissipation of body heat (which is best accomplished by immersion in ice water until the temperature falls below 101 F [38.33 C] or by alcohol sponging in the absence of shock and excessive hyperpyrexia) reduces the quantities of salt and water necessary to meet this discrepancy. Thus, in

the initial stages of therapy, the administration of levarterenol is contraindicated in that the generalized increase in peripheral vasoconstriction reduces the blood flow to the body surfaces, thereby impairing heat loss and accentuating the basic physiological defect. From this clinical setting of persistent shock and hyperpyrexia in the case of 2 patients (and even with a transitory recovery from shock in 1 other patient), the authors describe a progressive downhill course, which was characterized by tachycardia, coma, tachypnea, oliguria, fulminating hyperkalemia, and metabolic acidosis.

Hypernatremia, preceding or accompanying heat stroke, may influence the clinical picture. Several of the 100 patients reported by Austin and Berry had an elevated serum potassium level, as did the 3 patients reported here in whom the central nervous system symptoms were extremely severe. Other reports of patients with heat injury mention a small but definite incidence of oliguria and acute tubular necrosis, the development of which has not been correlated with the clinical course. Histological changes of acute tubular necrosis were present in the authors' 3 patients, although an antemortem diagnosis could not be made in 2 in the presence of shock. In the absence of prompt diagnosis and vigorous therapy a bizarre clinical picture may result, including shock, oliguria, and continued hyperpyrexia, with abrupt elevation of serum potassium level resulting in death from fulminating myocardial potassium intoxication.

Tuberculous Tracheobronchial Lymph-Node Involvement in Maturity. J. Le Melletier and T. T. Caulet. Semaine hôp. Paris **34**:1425-1436 (May 18) 1958 (In French) [Paris].

Active tuberculosis of the tracheobronchial lymph nodes, alone or in association with pulmonary lesions, seems to be comparatively common in middle-aged and elderly patients. Affected lymph nodes larger than a hazelnut were found at autopsy in 14 of 20 tuberculous subjects, aged more than 40 years. Three were due merely to anthracosis without evident specific lesions. The other 11 were found in subjects with caseosclerous tuberculosis (6), caseous tuberculosis without significant sclerosis (3), and alveolar tuberculosis (2). The specific formations observed in most of the specimens (9 out of 11) appeared to be at least partly recent in origin. The combination most often found was the presence in a single node of active tuberculous lesions and dense sclerosis that had apparently existed for a long time. Extension of the tuberculous process to, or rupture of the lymph-node lesions into, the adjacent organs, especially the bronchi, is the principal anatomic characteristic of this type of lymph-node involvement, which is usually found only at autopsy, often passing unnoticed during the patient's life. Roentgenographic pictures suggestive of lymph-node involvement, however, are found in many older patients with endotracheal tuberculosis.

The principal bronchoscopic findings are anthracotic ulceration and deforming bronchitis. The coexistence of tracheobronchial lymph-node involvement with ordinary pulmonary tuberculosis has little effect on the course of the disease, but when the tracheobronchial lymph-node involvement, either alone or with discrete pulmonary lesions, is the dominant condition, the clinical picture is quite different. Hemoptysis, sometimes repeated, was the warning symptom in 5 of the authors' patients. Recurrent bronchial attacks and enlarged lymph nodes in the neck each led to discovery of the condition in 2 patients, and in 2 others it was detected on roentgenologic examination. The course is usually torpid, but severe complications, such as pleurisy and tuberculous pleuropericarditis, may occur. Various nonspecific factors probably enter into the development or reawakening of tuberculous tracheobronchial lymph-node infection, but undoubtedly the most important are denutrition and advanced age, local irritation caused by anthracotic or calcareous deposits, and ordinary infections.

Osteomyelosclerotic Disease. G. Levi and C. Almici. Policlinico (sez. prat.) **65**:567-577 (April 14) 1958 (In Italian) [Rome].

Four patients with osteomyelosclerosis were hospitalized with the following symptoms: pain in the bones, pallor, general weakness, abdominal pain, mostly in the splenic region, and splenomegaly. Anemia was present in 3 patients, a mild leukocytosis in 1, and a small decrease in blood platelet count in 1. Material obtained by spleen biopsy in 2 patients revealed the presence of metaplastic myeloid tissue. Hardened bone obstructed the completion of sternal biopsy in all patients except 1, from whom only a small amount of bone marrow was obtained. Urobilinuria and indirect hyperbilirubinemia were found in 1 patient only; however, the Coombs test and the erythrocyte fragility test showed normal values. Roentgenologic findings revealed osteosclerotic changes in all skeletal parts in 2 patients and in the spinal column only in 2.

Osteomyelosclerosis is a disease running a chronic course. Since every specific therapeutic regimen has seemed to be fruitless, the patients were given a symptomatic treatment consisting of blood transfusion and antianemic management. They were discharged in an improved but uncured state. One patient died shortly after the discharge. Increases in both red and white blood cells and enlarged platelets were observed in this patient after splenectomy; histological examination of the resected spleen and of material obtained by liver biopsy revealed the presence of metaplastic myeloid tissue of megakaryocytic type.

SURGERY

Multicentric Carcinomas of the Oral Cavity. C. G. Moertel and E. L. Foss. Surg. Gynec. & Obst. 106:652-654 (June) 1958 [Chicago].

Of 732 patients with proved oral cancer seen at the Mayo Clinic during the 10-year period from 1944 through 1953, a total of 64 (or 8.7%) were found to have 2 or more discrete oral cancers. Associated leukoplakia was found in 75% of the patients with multiple oral lesions. An overwhelming majority of the patients were users of tobacco, particularly in the forms which expose the mouth to tobacco juices. The tendency to multicentricity shown by patients with oral cancer also extends to involve the contiguous squamous epithelium of the lips, pharynx, larynx, and esophagus. Fifty-five patients with oral carcinoma were found to have additional primary lesions in these locations, thus raising the over-all occurrence rate of multicentricity to 16.4%. When oral cancer develops, all the contiguous squamous mucous membranes must be considered as highly susceptible to future malignant change. It is the responsibility of the physician to insist on frequent and regular follow-up examinations, so that any second lesion may be detected and treated in its early stages. It is also his responsibility to initiate appropriate prophylactic measures to eliminate any possible sources of carcinogenic irritation to these regions.

Idiopathic Perforation of the Stomach in the Newborn. K. B. Castleton and F. F. Hatch. A. M. A. Arch. Surg. 76:874-881 (June) 1958 [Chicago].

After the elimination of those cases of perforation of the stomach in the newborn infant thought to be due to peptic ulcer disease, to the passage of a gastric tube, to the administration of oxygen, to trauma of the chest and abdomen, and to obstruction, infection, anoxia, intracranial lesions, and vascular lesions, there still remains a group of cases which constitute an entity better termed "idiopathic perforation of the stomach in the newborn." In order to fall in this category, the case should fulfill the following criteria: (1) be that of a newborn infant from a few hours to a few days old; (2) have no evidence of a peptic ulcer; (3) have no evidence of perforation of the stomach by gastric tubes or by the administration of oxygen, or of trauma to the chest and abdomen; and (4) have no evidence that perforation occurred as the result of obstruction of the intestine, of vascular lesions of the stomach, or of significant cerebral lesions. A review of the literature indicates that some 40 cases fulfill these criteria. Male patients outnumber female patients in a ratio of 2.5:1. The youngest patient was 11 hours old and the oldest 10 days old at the onset of symptoms. Race plays no role, and only 1 case had been reported with a positive Wassermann reaction. Too few cases have been reported to fully evaluate the significance of the Rh factor. Twenty-two of the 24 patients that had x-ray studies showed free air in the peritoneal cavity. Operation was done on 23 patients, with 8 survivals. None of the infants not operated on survived. The muscular layer in 13 of the infants was reported absent at the site of perforation and thinned out in 5 others. Six of the infants exhibited congenital anomalies; however, none of them were premature infants. Of the 30 cases reported, the site of perforation was on the greater curvature in 22, on the lesser curvature in 4, on the anterior wall in 2, in the fundus in 1, and in the cardia in 1.

Typically, the infant is born with little or no trouble, is often small, and is frequently premature, with a higher than normal incidence of congenital defects. He remains well for a few hours and then may refuse feedings, vomit, demonstrate a high, low, or normal white blood cell count, and sometimes have fever. In addition to having a tense, distended, and often edematous abdomen, he is frequently dyspneic and even jaundiced. X-ray examination gives a remarkably uniform picture of large amounts of free air in the abdomen, especially in the upper portion. The only treatment is surgical and must be done early, for, as soon as the peritoneum is incised, gas escapes under pressure and evidence of peritonitis is seen. The authors report 3 cases, making a total of 43 cases of this type reported. One patient is of interest in that his case was diagnosed preoperatively; he was successfully operated on after the first and second perforations, only to develop a third perforation from which he died.

Results of Surgical Treatment for Severe Chronic Gastritis. E. S. Judd and C. C. Edwards. A. M. A. Arch. Surg. 76:882-887 (June) 1958 [Chicago].

An ever-increasing experience with patients who exhibited severe symptoms, including repeated hemorrhage, and who were given a definite diagnosis of ulcer, polypoid disease, or cancer after thorough study by competent internists, but who were found on surgical exploration to have only severe gastritis, prompted the authors to analyze a series of cases in which this problem had presented itself. The records of the Mayo Clinic between Jan. 1, 1946, and Dec. 31, 1950, were examined to obtain material for this study, and revealed 51 cases of severe chronic gastritis as the proved surgical pathological entity without any other coexisting gastric or duodenal disease. The patients ranged in age from 33 to 65 years, the average age being 50.2 years. The preoperative clinical diagnosis proved to be extremely difficult and variable. Gastric analysis appears to have made only a minor contribution to the diagnosis. In a great majority of the cases there was unequivocal x-ray evidence

of serious gastric or duodenal disease. Little emphasis was placed on gastroscopy in view of the limitations of the procedure.

Of the 51 patients, 32 had been treated immediately by partial gastrectomy, 16 had undergone gastrotomy with internal examination of the stomach and biopsy of at least 1 area of the mucosa, and 3 had submitted to vagotomy after biopsy. A large group (72%) of patients who had resection were considerably improved, as indicated over the course of a 7-year follow-up study. Mere gastrotomy with biopsy was definitely less successful than resection, although medical management subsequently has kept many of these patients relatively comfortable. Several patients would appear to have been helped by vagotomy. Only 9 of the patients had experienced gastrointestinal hemorrhage before operation, either melena or hematemesis, or both. Two patients of the resection group continued to bleed after operation. The exact nutritional difficulty experienced by the patient was rather difficult to evaluate from the history prior to operation, and the analysis did nothing to clarify this issue. Likewise, it was difficult to assess the nutritional status of patients after operation, although it was learned that 2 patients in the resection group had "dumping syndrome" in the early weeks after resection and have continued to complain of rapid filling, weakness, difficulty in maintaining their weight, and a constant necessity for taking iron and vitamins and for supportive therapy. The complications after surgical management were in no way remarkable. No deaths in the hospital followed surgical treatment for these patients, and none of the patients have yet demonstrated a malignant gastric lesion. Thus, when a surgeon is confronted with a problem of severe gastritis, having already committed himself to laparotomy, in the light of present-day morbidity and mortality possibilities, gastric resection should be given serious consideration.

Surgical Treatment for Endocardial Fibroelastosis or Anomalous Left Coronary Artery: Four Years' Experience with Poudrage. R. N. Paul and S. G. Robbins. Am. J. Cardiol. 1:694-705 (June) 1958 [New York].

The authors report on 4 boys and 6 girls, between the ages of 6 and 24 months, who were operated on for either anomalous left coronary artery or primary endocardial elastosis by means of the poudrage technique, a relatively simple procedure of instilling sterile talc powder into the pericardial sac over the surface of the left ventricle. The first 4 patients operated on have been followed for 4 years. Of the 4, 1 died during the immediate postoperative period; the other 3 are all living and well, and none of them is now receiving digitalis. All 3 patients seem to be clinically improved in comparison with their preoperative condition. The first patient seems to have progressed better, in general, than the other 2; he is completely asymptomatic and appears entirely normal in all respects except for heart size. In the second patient, multiple premature ventricular contractions and cardiac decompensation occurred 1 year after operation and necessitated resumption of digitalis therapy. Administration of digitalis was discontinued 8 months later, with no further signs of heart failure but with occasional occurrence of premature contractions. The third patient continues to manifest very mild dyspnea, which has persisted in this degree since shortly after the operation. Of the remaining 6 patients, 3 died, and the 3 survivors have been followed from 2½ to more than 3 years postoperatively. All the survivors are clinically well without having received digitalis for more than 2 years. The 6 survivors of both groups now range in age from 4 years to 4 years and 9 months and have shown improvement with respect to weight curve (Iowa State grid), heart size, and/or cardiothoracic ratio. It is felt that considerably more time is necessary for absolute proof of the merit of surgical treatment with the aid of poudrage, but with up to 4-year survival associated with general clinical improvement in the 6 survivors, the authors are quite enthusiastic that the procedure is beneficial.

Adrenalectomy for Hyperfunctioning Lesions of the Adrenal Cortex. E. H. Ellison and G. J. Hamwi. A. M. A. Arch. Surg. 76:843-856 (June) 1958 [Chicago].

This report of adrenocortical hyperfunction problems is based upon cases reported in the literature and upon 12 cases in which the patients were treated by total or subtotal adrenalectomy; the latter include 8 cases of primary Cushing's syndrome, 2 cases of Cushing's syndrome secondary to pituitary tumor, 1 case of pituitary aldosteronism, and 1 case of congenital virilism associated with an adrenocortical carcinoma. For the purpose of clarification, the lesions have been categorized as (*a*) functioning tumors of the adrenal cortex and (*b*) adrenocortical hyperfunction without tumor. These categories are further subdivided into 3 disease entities according to the hormone secreted in excess: (1) Cushing's syndrome produced by excessive hydrocortisone; (2) aldosteronism produced by excessive aldosterone; and (3) virilism produced by excessive adrenal androgens. On occasion these tumors are capable of secreting excessive amounts of estrogens resulting in feminization. The adrenal cortex is capable of secreting any combination of the above factors, so that mixed syndromes manifesting any or all of the clinical findings seen in Cushing's syndrome, aldosteronism, or virilism are present.

All 8 patients with primary Cushing's syndrome are alive and well, the time since operation varying from 3 months to 5 years. Age at operation ranged from 7 to 52 years. Of the 6 patients on whom subtotal adrenalectomy was performed, one required the removal of additional adrenal tissue for persistence of symptoms, and another required replacement therapy. Two patients underwent successful total adrenalectomy. Three of the 8 patients with primary Cushing's syndrome developed the following postoperative complications: paralytic ileus, 1; atelectasis, 2; and infections, 2. Six of the 8 patients had preoperative systolic blood pressures in excess of 150 mm. Hg; 5 of them are now normotensive. Preoperative blood pressures in the 2 patients who underwent total adrenalectomy were 225/142 and 180/120 mm. Hg, respectively; both these patients are now normotensive. The single operative death in the series was due to hemorrhage secondary to an abnormal clotting mechanism in 1 of the patients with a primary pituitary tumor. Several months after subtotal adrenalectomy, the 1 patient with aldosteronism developed increased intracranial pressure, which responded to ventricular taps and eventually to cortisone replacement therapy. The 1 patient with virilism menstruated several months ago; her body contour is now more feminine, and her general well-being is excellent.

The operative approaches to the adrenal glands are many and varied. Several considerations are paramount in the selection of an approach. First, the surgeon must be able to visualize both of the adrenal glands before deciding upon the definitive operative procedure. Second, he should be able to explore the ovaries for disease simulating cortical hyperfunction or tumor. Finally, the site of cortical rests should be examined for aberrant adrenal tissue. The only procedure found to meet all these criteria is the anterior transabdominal approach, which permits exposure of all adrenal tissue, including sites of cortical rests, as well as exploration for ovarian disease.

An Evaluation of Implantation of the Internal Mammary Artery into the Myocardium of Pigs and Dogs. H. H. Patt, M. Goldberg, J. V. Clift and B. Lourvanij. J. Thoracic Surg. 35:699-705 (June) 1958 [St. Louis].

In their studies on the revascularization of the myocardium, the authors were particularly interested in the internal mammary artery implant. They selected the weanling pig for their studies primarily because its coronary circulation is of the end-artery type and very closely approximates that of the human being. It has been shown that ligation of the left anterior descending artery in the pig results in almost 100% mortality within 15 minutes. Of 25 pigs which survived the implantation of the left internal mammary artery into the myocardium of the left ventricle, 11 were operated on after a 6-to-12-week period, and a test ligation of the left anterior descending artery was performed. Of this group, 10 died promptly of ventricular fibrillation, suggesting a failure of the implant to protect the myocardium from the effects of left anterior descending artery ligation. Postmortem examination in each of these 10 animals revealed gross and microscopic occlusion of the implanted internal mammary artery. Fourteen of the pigs with internal mammary artery implants grew too large to handle for secondary operation in the laboratory. These were slaughtered at an abattoir, and the hearts were removed for examination. In no instance was an anastomosis demonstrable between the internal mammary artery implant and the coronary circulation. Only 1 pig in the series of 25 could be considered to have a successful internal mammary artery implant.

In another series of tests the authors used mongrel dogs, duplicating the conditions of Vineberg's 1946 experiments on internal mammary artery implantation. A significant anastomosis was demonstrable in only 1 of 19 dogs (5.3%) subjected to implantation of the internal mammary artery after partial ligation of the left anterior descending artery. The authors concluded that in their hands the implantation of the internal mammary artery into the myocardium was not a satisfactory method for improving the blood supply to the heart.

Nonpenetrating Traumatic Injury of the Aorta. L. F. Parmley, T. W. Mattingly, W. C. Manion and E. J. Jahnke Jr. Circulation 17:1086-1101 (June) 1958 [New York].

Of 1,174 persons who died of nonpenetrating traumatic injury of the heart and aorta and on whom autopsy was performed at the Armed Forces Institute of Pathology in Washington, D. C., 275 had rupture of the aorta, and 21 had laceration involving only 1 or 2 layers of the aorta. The total number of 296 cases of nonpenetrating traumatic injury of the aorta suggests that this lesion should be suspected more frequently in the traumatized person. In 114 of the 275 persons the aortic rupture was produced by an automobile accident. The aortic isthmus, just distal to the left subclavian artery, was the commonest site of rupture; the rupture occurred at this site in 124 of the 275 persons. Thirty-eight of the 275 persons survived the initial injury for a time, an over-all survival rate of 13.8%, but this figure included those with associated cardiac injury. Almost 20% of all persons who sustain a traumatic rupture of the aorta without associated cardiac lesions may be expected to survive at least temporarily. One hundred one (36%) of the 275 persons had minimal or no external evidence of chest injury, despite a high incidence

of rib fracture. Although many patients were in shock initially, blood pressure was within normal range in 10 and became normal in an additional 19 soon after measures to combat shock were instituted. Chest or abdominal pain, dyspnea, tachycardia, hemoptysis, and cyanosis were the more common clinical manifestations. These signs and symptoms were most often attributed to other injuries, frequently to associated pulmonary lesions. These observations emphasize that external evidence of trauma may be minimal and that initial evidence of definite cardiovascular injury may be lacking. Roentgenologic signs of a widened mediastinum, evidence of persistent thoracoabdominal hemorrhage, and the appearance of delayed hemothorax represent early diagnostic criteria of aortic rupture.

Diagnosis of aortic rupture is easiest in those cases in which a traumatic false aneurysm of the aorta develops and then remains stable and asymptomatic. Routine x-ray examination of the chest was the means whereby diagnosis was made in 9 patients. The causation of the aneurysm is suggested when the past history is evaluated in the light of the x-ray findings. Prompt diagnosis of traumatic rupture of the aorta is essential if surgical treatment is to be performed before fatal sequelae develop. Surgical treatment of a traumatic aneurysm of the aorta that is producing no symptoms and has been shown to have remained unchanged over a period of years should be approached only after careful consideration. Successful surgical resection of a traumatic aneurysm of the aorta and repair of the defect with aortic homografts in 2 patients are reported.

Five Year Survival After Anterior Resection for Carcinoma of the Rectum and Rectosigmoid. C. W. Mayo, M. Y. Laberge, and W. M. Hardy. Surg. Gynec. & Obst. 106:695-698 (June) 1958 [Chicago].

Records of 171 patients who had undergone anterior resection for carcinoma of the rectum and rectosigmoid at the Mayo Clinic in 1950 and 1951 were reviewed, and this series was compared with 336 cases of anterior resection performed from 1945 through 1949. The age and sex of the patients, the proctoscopic level of the lesions, and the grade of malignancy were essentially the same in both groups. During the 5-year period from 1945 through 1949, there were 15 hospital deaths among the 336 patients, giving a hospital mortality rate of 4.5%. For the 2-year period from 1950 through 1951, there were 10 hospital deaths among the 171 patients, giving a mortality rate of 5.8%. The 5-year survival rate was 3.5 percentage points better in the series of cases in 1950 and 1951 than it was in the series from 1945 through 1949. The results in the total of 507 patients with carcinoma of the rectum and rectosigmoid treated by sphincter-saving anterior resection were compared with results obtained in similar patients treated by sphincter-sacrificing procedures. It was concluded that the sphincter-saving operation compares favorably from the curative standpoint with 1-stage combined abdominoperineal resection or 2-stage posterior resection performed for lesions in the controversial segment of the intestine; that is, those situated between 6 and 14 cm. from the dentate margin.

The authors presented these statistics in order to demonstrate that adequate radical resection of carcinoma of the upper rectum and rectosigmoid does not require removal of the rectal sphincter in all cases. The decision as to whether or not the sphincter should be sacrificed in individual cases must be made by the surgeon. The decision must be based on the technical feasibility of removing the lesion from above and of excising the intestine far enough below the lesion to accomplish complete extirpation of any distal spread. When this is possible, the surgeon is justified in selecting the sphincter-saving procedure.

Surgical Repair of a Traumatic Aortic-Right Ventricular Fistula. H. King and H. B. Shumacker Jr. J. Thoracic Surg. 35:734-739 (June) 1958 [St. Louis].

This report is concerned with an aortic-right ventricular fistula of traumatic origin. The patient was a 15-year-old boy who was hammering a blank cartridge when it exploded and struck him in the chest. He was dyspneic on arrival at his local hospital. A loud cardiac murmur was heard. He was transferred to the Indiana University Medical Center in Indianapolis 10 hours after injury. He was in acute distress. There were 2 small lacerations in the third interspace, about 5 cm. from the midline. A small amount of subcutaneous emphysema was present over the upper chest on the left side. A harsh, grade 4 to 5, continuous murmur was heard throughout the entire precordial area but most loudly in the second left anterior interspace. A continuous thrill was palpated in the same area. Fluoroscopy revealed a slight increase in the size of the pulmonary conus and a questionable enlargement of the left ventricle. An irregular opaque foreign body, measuring 1 cm. in greatest diameter, was present in the left anterior mediastinum. The impression was that the continuous murmur resulted from the injury to the chest. Later the authors arrived at the erroneous conclusion that the patient more likely had a congenital patent ductus arteriosus and that the injury was unrelated. The site of the injury healed, and the patient was discharged.

At a thoracotomy 10 weeks later, a patent ductus was not found. The continuous thrill could be palpated through the pericardium anteriorly in the region of the base of the pulmonary artery or right ventricular outflow tract. In this area there was

dense scar tissue and adhesions of the pericardium to the anterior chest wall. Since open cardiotomy with bypass of the heart and lungs seemed necessary, the pericardium was not opened at this time. At a bilateral anterior thoracotomy, carried out about 6 months after the injury, the venae cavae and the left femoral artery were cannulated, and cardiopulmonary bypass was begun. After cardiac standstill was achieved, the right ventricle was opened through a vertical incision made downward from the base of the pulmonary artery. The fistula was easily seen. It measured about 1 cm. in diameter. A narrow fibrous band lined the edge of the defect. A Kelly clamp was easily passed through this opening and emerged within the aorta in the region of the right coronary sinus of Valsalva. The defect was closed, and the right ventriculotomy was then closed. After the clamp was removed from the aorta, ventricular fibrillation began, and 4 electric shocks were necessary to convert the heart action to a normal rhythm. After the cannulas were removed, a large part of the scarred anterior pericardium was excised. The patient gained 13 lb. (5.9 kg.) in the first 8 weeks after operation. His exercise tolerance greatly increased.

Five Cases of Congenital Aneurysm of the Aortic Sinuses (of Valsalva) and Notes on the Prognosis. H. G. Davidsen, J. Fabricius and E. Husfeldt. Acta med. scandinav. 160:455-470 (No. 6) 1958 (In English) [Stockholm].

In most of the recorded cases of aneurysm of the aortic sinuses, the diagnosis has been made at autopsy. The absence of severe clinical symptoms before complications have arisen and the short time of survival after the appearance of complications may be responsible for the rarity of diagnosis in the living patient. During the last few years 5 patients with congenital aneurysm of the aortic sinuses were observed in the Rigshospitalet of the University of Copenhagen. [Rupture of an aneurysm into the chambers of the heart involves an unfavorable prognosis.] Two of the 5 patients had a communication from the aorta into the right heart. One of these had lived for at least 7 years without progression of symptoms; the other had symptoms of rapidly increasing cardiac failure and died during operation. In 2 patients the aneurysm of the aortic sinus was complicated by a backflow to the left ventricle, resulting in a hemodynamic condition resembling aortic incompetence. The 5th patient had no demonstrable abnormality of the circulation and only moderate symptoms.

The causes of death in congenital aneurysm of the sinuses of Valsalva were investigated by study of the literature. Death may follow rupture of an aneurysm into the chambers of the heart, compression of the bundle of His, impairment of the aortic valvular function, or secondary bacterial endocarditis. Of 17 patients whose records contained information about the localization and size of the rupture and the time of survival after the rupture, 10 had rupture into the right atrium. In these the time of survival after the acute onset of symptoms ranged from 1 hour to 3 years. Four patients in whom the ruptures measured 8-12 mm. died before the end of the second month. In contrast to this, 4 patients, who survived for more than 1 year, had ruptures measuring 5-6 mm. In 1 patient a small communication was supposed to have been present for a long time, and death occurred 5 weeks after an episode probably representing a rupture of the aneurysm, which widened the communication to its final size of 7 mm. One man, aged 67 years, had complications in the form of fenestration of the aortic cusps and died only 12 days after a small rupture. The size of the rupture seems to be of importance for the prognosis, and the size of the shunt as measured at cardiac catheterization should be a valuable means of determinating the prognosis.

Referral to a cardiac center for a detailed diagnostic study is advisable for patients presenting with sudden precordial pain, dyspnea, and signs of rapidly increasing cardiac failure, if the physical examination reveals a loud systolic/diastolic or continuous machinery murmur located near the lower end of the sternum. A high pulse amplitude and a pistol-shot sound over the femoral artery are usually present. The authors believe that surgical repair of aneurysm of the aortic sinuses is indicated only in the small group of patients in whom an aneurysm has ruptured into the right atrium. This is provided that (1) a considerable left-to-right shunt into the right atrium is present; (2) there are no signs of a complicating interventricular septal defect; and (3) there is no endocarditis, syphilis, or arteriosclerosis.

Lymphoid Polyps (Benign Lymphoma) of the Rectum and Anus. F. Holtz and L. A. Schmidt III. Surg. Gynec. & Obst. 106:639-642 (June) 1958 [Chicago].

So-called benign lymphoma of the rectum is an uncommon, usually solitary, polypoid lesion of the lower rectum or anus, composed of lymphoid follicles which are limited to the mucosa and submucosa. The chief importance of the condition is that it may be diagnosed erroneously as malignant lymphoma. Synonyms for this rectal lesion are lymphoid polyp, polyp of lymphatic tissue, lymphoma, simple lymphoma, abnormal accumulation of lymphoid follicles, primary lymphoid tumors of the rectum resembling internal hemorrhoids, and benign lymphoid hyperplasia of the rectum. All the noncarcinomatous or nonadenomatous polyps of the rectum and anus seen in the department of pathology of the University of Michigan Medical Center from July, 1935, to June 30, 1955, were re-

viewed. There were 24 cases that met the criteria of "benign lymphoma" or lymphoid polyp. During this same period, 7 examples were diagnosed as malignant lymphoblastoma primary in the rectum. The 24 patients included 16 women and 8 men. The ages ranged from 21 to 64 years, with the greatest concentration in the 4th decade.

Sixteen patients complained of rectal bleeding, which varied in frequency from an occasional streaking of the stool to a loss of one-half cupful of blood with each stool. Constipation was the next most frequent complaint reported by 9 patients; and only 1 patient complained of diarrhea. A mass was detected on routine physical examination in 8 patients, while in 3 others a mass protruded at defecation. Seven patients complained of vague rectal pain. In 8 patients there were concomitant hemorrhoids, and 1 patient had colonic diverticulosis. The polyps varied from 5 mm. to 3 cm. in diameter and occurred from the level of the anal sphincter to 14 cm. above this area. None of the patients had more than 3 polyps. Twenty-one patients could be traced for follow-up. Three had died, from 2 to 14 years after removal of the lesion, of other causes, and there was no evidence of recurrence in these patients. One patient who was alive 20.7 years later had symptoms of recurrence. Seventeen patients are alive and asymptomatic. Histological studies on the lymphoid polyps resulted in the conclusion that these lesions are the result of chronic inflammation, possibly at the site of minor anatomic abnormalities. The authors feel that the term "lymphoid polyp" may be preferable to the term "benign lymphoma."

Auscultation as an Important Aid to the Diagnosis of Fractures. J. C. Colwill and E. H. Berg. Surg. Gynec. & Obst. 106:713-714 (June) 1958 [Chicago].

The authors add osteophony, as another classical sign present in fractures, to the existing list of local swelling, ecchymosis, deformity, crepitus, and local bone tenderness. Except for crepitus, osteophony is the only one which is directly dependent upon the break in the bone, rather than the effect of trauma upon the surrounding soft tissue. Unlike crepitus, or even local bone tenderness, the sign is elicited without manipulation at the fracture site. Only a stethoscope and the percussing finger are required for the test. In general, one subcutaneous bony area distal and one proximal to the site of the suspected fracture are selected. With the stethoscope over one site, the other site is tapped with a force similar to that used in percussion of the chest. The sound heard is compared with that heard over an identical area on the opposite extremity. The sites for auscultation and percussion may be distally removed from the fracture by 1, 2, or more joints. In the case of a fracture, the affected extremity conducts a sound of much less intensity and pitch than that heard on the compared normal side.

The test was applied to 50 normal patients and to 50 consecutive patients with fractures. In every case of fracture of the long bones, other than the impacted fracture of the head of the femur, in which x-ray examination demonstrated solid cortical contact, the test was positive. In all cases of fracture about the ankle joint, the test was negative because of difficulty in applying the test to fragments on either side of the fracture line. In 1 fractured pelvis the test was negative because of adequate cortical contact of at least 1 ramus. The authors conclude that this method of fracture diagnosis, which utilizes the alteration of sound conduction through bone and requires only the stethoscope, might prove useful in mass catastrophe triage.

Failure of Migration of the Rectal Opening as the Cause For Most Cases of Imperforate Anus. A. H. Bill Jr. and R. J. Johnson. Surg. Gynec. & Obst. 106:643-651 (June) 1958 [Chicago].

The authors studied 70 cases of anorectal anomalies during the past 9 years. In 2 patients an anal opening was present at the usual site, but one of these had a supra-anal stenosis and the other had an atresia of the rectum. In this report the authors discuss a group of 68 infants in whom they found no opening at the usual position of the anus. In 64 of these an opening was demonstrated from the tip of the rectum into the lower bladder or posterior urethra in the male, or into the lower vagina in the female, or else anteriorly placed in the perineum in either sex. In only 4 patients with no opening at the normal anal position did the large intestine end blindly. Studies of the embryologic source material and deductions from their own material suggested to the authors that the rectal opening normally "migrates" as an almost separate entity caudalward during the formation of the septum which divides the cloaca into the urogenital system and the rectum. When the rectal opening reaches the level of the developing perineum, it appears to be moved posteriorly to its normal position where it becomes encircled by the separately formed sphincter ani externus. When this "migration" is arrested and the rectal opening does not reach the normal position of the anus, one should expect to find the rectal opening somewhere along its course. Thus, the concept of "incomplete migration" of the rectal opening is suggested as the probable cause in the majority of cases of imperforate anus.

Other investigators who have reported on large series of infants with imperforate anus also emphasized the fact that one must be prepared to find an abnormal connection between the rectal pouch

and the genitourinary tract, the vagina, or the perineum. When an ectopic opening is present and yet goes unrecognized, and the rectum is brought down to the normal anal position without dividing the original opening into the urinary tract in the male or the vagina in the female, the results leave a good deal to be desired. The ectopic opening may be minute or practically microscopic, especially in the male. Yet the authors believe that it must be found and closed by mobilizing the rectal portion downward to form the new opening at the position of the sphincter ani externus. The authors comment on the classification of abnormalities of rectum and anus proposed by Ladd and Gross in 1934, which allows uniformity in reporting cases.

NEUROLOGY & PSYCHIATRY

Encephalomyelitis Myalgica Epidemica, a Disease Resembling Poliomyelitis (Epidemic Neuromyasthenia, Benign Myalgic Encephalomyelitis). O. Gsell. Schweiz. med. Wchnschr. 88:488-491 (May 17) 1958 (In German) [Basel, Switzerland].

The author reports on 3 epidemic outbreaks in Switzerland of a disease resembling poliomyelitis; 1 in a hospital in Frohburg, canton St. Gallen, in 1937; 1 in a military encampment in Degersheim in 1939; and 1 in another military encampment in Erstfeld in 1937. The epidemic in Frohburg occurred in a gynecologic ward and involved 7 nurses, 5 patients, 1 physician, 1 nurse's aid, and 3 contact persons; 3 of the affected persons had pareses, 8 showed the clinical aspect of meningitis, and in 6 with fever the disease was abortive. An acute onset, a febrile course of several days' duration, stiffness of neck and back, leukopenia, normal cell counts in the cerebrospinal fluid (1 or 2 per cubic millimeter and only once 8), and slight reactions to the gold sol test were noted. Headache, pain in joints and limbs, paresthesias, and during convalescence adynamia and lability of circulation were observed. The pareses were manifested by weakness of muscles without absence of reflexes and were associated with severe neuralgia in the affected extremities. Involvement of the air passages with bronchitis and with pulmonary infiltration was notable, but these disturbances cleared up rapidly without complications, and so did the weakness of the muscles. Mild recurrences and neurasthenic secondary symptoms were observed. All the patients recovered without residues. The second epidemic in Degersheim involved 73 young adults, 5 of whom had pareses, 2 had encephalitic symptoms, 12 showed a meningoneuritic aspect, and 54 had mild disturbances of the air passages. The disease was benign and of short duration, with mild fever and complete disappearance of muscular weakness. Neuralgic accompanying symptoms were observed frequently; of the 19 patients with pareses and meningeal symptoms, 10 had intercostal neuralgia and pain extending along the course of the sciatic and trigeminal nerves. Disturbances of the autonomic nervous system, with fatigability, sweating, tremor, and tachycardia, occurred during convalescence. The number of cells in the cerebrospinal fluid varied between 1 and 3 per cubic millimeter in 13 of 17 patients; 6 and 7 cells per cubic millimeter were counted in 2 patients, and an increase to 125 and 250 per cubic millimeter, respectively, was observed in 2 patients with pareses. All 73 patients were able to resume their activities within 3 months. The third epidemic in Erstfeld involved 130 of the 930 persons in the military encampment; 6 had encephalomyelitic disturbances with pareses, 16 had meningeal symptoms, and in 108, with mild disturbances of the air passages, the disease was abortive. The number of cells in the cerebrospinal fluid and the protein content were not increased. There was mild fever which was diphasic in 3 patients. Headache, stiffness of back and neck, myalgia, rhinopharyngitis, bronchitis, sweating, and zones of hyperesthesia were observed. The pareses were mild and disappeared within 2 to 4 weeks. All patients recovered, but some of them were ill for 5 weeks.

These epidemics were similar to those which were observed in other countries, such as Iceland, England, South Africa, Australia, and the United States, and for which various terms, such as "disease simulating or resembling poliomyelitis," Iceland disease, Akureyri disease, epidemic neuritis, benign myalgic encephalomyelitis, and epidemic neuromyasthenia, were used. The authors prefer the term "epidemic myalgic encephalomyelitis," since the disease was benign only insofar as there were no deaths. All virologic studies gave completely negative results. In contrast to poliomyelitis, abnormal changes in the cerebrospinal fluid were also absent as a rule. There was no evidence of muscular atrophy, and tendon reflexes were within normal range.

Thrombosis of the Internal Carotid Artery Simulating an Intracranial Space-Occupying Lesion. E. Clarke and P. Harris. Lancet 1:1085-1089 (May 24) 1958 [London].

Thrombotic occlusion of the internal carotid artery may present many different clinical pictures. The authors report the histories of 5 patients, in whom an intracranial space-occupying lesion was simulated. Cerebral tumor had been diagnosed in 4 of these patients and a cerebral abscess in 1. The first symptoms are produced by gradual encroachment on the lumen of the internal carotid artery, resulting in the syndrome of intermittent carotid insufficiency. Initially the transient ischemia does no permanent damage to the brain, but an area of infarction is eventually produced. There are often

2 stages in the development of the picture: (1) the progressive or intermittent appearance of focal symptoms and (2) the features of a space-occupying cerebral lesion, which usually necessitate admission to hospital. The usual history is one lasting weeks or even years, characterized at first by persistent headache, which is also a common feature in other types of carotid thrombosis, but as in 1 patient of this series headache may be absent. Focal or generalized convulsions and progressive weakness and paresthesia of the limbs on 1 side, mainly in the arm, often appear, and, if the dominant hemisphere is involved, dysphasia will be added. The defects of speech and limbs may appear in attacks, with complete recovery between them; and these episodes, which presumably result from transient cerebral ischemia, may closely simulate focal epileptic attacks. Eventually permanent signs appear. There is also impairment of mental state, and this too may be progressive or intermittent and may be related to disturbance of language function when the dominant hemisphere is involved.

On examination in the second clinical phase, all the signs of a cerebral tumor may be discovered. The patient may be drowsy, and papilledema is often present. As in 3 of the patients presented here, the papilledema may be bilateral and at times greater on the side of the affected cerebral hemisphere. Not only the symptoms and signs but also the abnormalities in the roentgenogram, in the cerebrospinal fluid, and in the electroencephalogram may be identical with those due to a space-occupying lesion; and an incorrect diagnosis of cerebral neoplasm, cerebral abscess, or traumatic intracranial hemorrhage may be made. Only carotid angiography permits definite differentiation.

Treatment should, if possible, be carried out before complete arterial occlusion takes place, but this is only occasionally feasible. Medical measures, such as antispasmodic and anticoagulant drugs, have not been very effective in the chronic or the acute phases of the disease, and anticoagulants are thought by some to be contraindicated in view of possible hemorrhagic complications in the brain. A surgical approach seems to be more profitable.

Further Investigations of the Antigenic Activity of British Poliomyelitis Vaccine: Reports to the Medical Research Council. F. T. Perkins, E. J. C. Kendall, T. S. L. Beswick and others. Brit. M. J. 1:1206-1209 (May 24) 1958 [London].

The effect of a third dose of poliomyelitis vaccine given 18 months after primary immunization was studied in England in a group of 21 children who originally had no antibodies to any of the 3 types of poliomyelitis virus. It was shown that the children produced to all 3 components of the vaccine substantial antibodies which were similar to those produced by children who received their third dose 8 to 11 months after primary immunization. The decline in antibody levels during the 18-month period between the primary and third doses was least in titers to type 2, and this type gave the best response to the third dose.

The serologic response to poliomyelitis vaccine was studied in another group of 152 persons, whose ages ranged from 13 to 50 years and who, before receiving vaccine, had no antibodies to any of the 3 types of poliomyelitis virus. Two injections of vaccine were given at an interval of 4 weeks, and antibody levels were determined 2 weeks after the second dose. Antibody titers of 1:4 or greater were produced by all persons to types 2 and 3 and by all except 12 to type 1.

Neurologic Disorders After Asian Influenza. F. A. Horner. New England J. Med. 258:983-985 (May 15) 1958 [Boston].

The author reports on a 20-year-old woman, 2 boys, aged 8 and 16 years, and 2 girls, aged 3 and 14 years, who were convalescing from Asian influenza and in whom certain neurological syndromes arose. The older boy and the 2 girls presented many clinical features in common. In each, progressive lethargy, irritability, and stupor occurred within a few days of recovery from Asian influenza. The encephalopathies in these 3 patients were characterized in their most severe stage by evidence of decortication. Despite the clinical similarity, the outcome was quite variable. The 16-year-old boy recovered completely except for a mononeuritis involving the posterior interosseous nerve. The younger girl recovered but showed marked mental and motor change. The older girl died, and autopsy revealed extensive but patchy demyelination of the central nervous system; a virus having the properties of an Asian strain of type A influenza virus was isolated from her lungs but not from the central nervous system. The younger boy presented a syndrome not uncommon in children, for which the terms "acute cerebellar ataxia" and "acute ataxia of unknown causation" have been used by other workers. The adult patient showed the aspect of a disseminated encephalomyelitis; the possibility of a compressive lesion of the spinal cord was entertained because of the severe back pain in association with the transverse myelitis. However, no block was demonstrated by the manometric response of the spinal fluid, and no exudate was obtained on aspiration of the spinal epidural space. The patient was given prednisone in doses of 10 mg. every 6 hours, but first she remained paraplegic, with hyperactive deep tendon reflexes, and the cranial nerve involvement persisted. Clinical improvement began 6 days after the institution of steroid therapy.

The hemagglutination inhibition against Japanese 305/57 virus is a specific serologic test for the virus of Asian influenza. The marked elevation of titers for both complement fixation and hemagglutination inhibition in the 4 surviving patients clearly indicated that these patients were recovering from Asian influenza. Although the early death of the 14-year-old girl precluded diagnosis by serologic tests, the virus isolated from the lungs showed the laboratory properties characteristic of an Asian strain of type A influenza virus. The clinical, laboratory, and autopsy data in these 5 patients support the concept that influenza virus infections may be followed by disorders in the central nervous system. It appears that Asian influenza can cause serious morbidity and even death by a reaction in the central nervous system to the infection.

Alcoholic Gasserian Injection for Relief of Tic Douloureux: Preliminary Report of a Modification of Penman's Method. A. Ecker and T. Perl. Neurology 8:461-468 (June) 1958 [Minneapolis].

Penman described a method of injecting the posterior root of the gasserian ganglion under roentgenographic control. Preliminary roentgenographic study determined the entry point of the needle and the required relationship to the individual patient's skull, further roentgenographic study indicating the position of the needle in the base of the skull and permitting accurate adjustment of its depth. The effect of injecting a minute amount (0.03 cc.) of procaine was judged by careful sensory testing in order to deduce the exact relation of the needle to the posterior root before minimal amounts (0.05 cc.) of absolute alcohol were injected. Penman was able to produce immediate relief of tic douloureux in 97 of his first 100 patients, although 82 later suffered from corneal anesthesia and 15 required tarsorrhaphy because of keratitis. The authors have minimized the risk of involvement of the opthalmic fibers by modifying Penman's method to the extent that the patient now lies in the supine position with the face up. The method of insertion of the needle was simplified and defined more precisely, and some additional sensory observations were made after injection. The analgesia produced with the modification was that quantity just sufficient to relieve pain, thus lessening the extent of numbness and the incidence of late disturbing paresthesias.

This office procedure has been used over a period of 3 years to treat 45 successive patients with tic douloureux (classical trigeminal neuralgia). Seven of the patients had had previous surgical rhizotomy for this condition; 1 had had no relief, and the remaining 6 obtained temporary relief, with recurrence of pain. Numbness was produced in all 45 patients, and pain was relieved completely, at least temporarily. Insufficient alcohol was injected into the correct portion of the posterior root in 9 patients, and pain recurred. Another injection was made in 6 of these patients within 6 months. In the remaining 3 patients pain had recurred after 27, 10, and 11 months respectively. A review of the films of the first 7 of these 9 patients showed that the needle position was not correct in 4. One patient experienced very severe and frequent pain as well as 2 unusual features: (1) overlap of touch sensation and (2) an unexplained delay of a few days in the relief of his tic pain. There were no serious complications in any case, save for headache and late painless labial herpes. Total permanent loss of corneal sensation was produced in 7 patients (16%), but in no instance has it led to keratosis or required tarsorrhaphy. In one patient there was impairment of accommodation and enlargement of the pupil for 2 days, another patient experienced abducens palsy for a few minutes, and a third patient exhibited nystagmus and 7th nerve paralysis momentarily. A hematoma developed in 2 patients but did not increase in size, and the intracranial injection was accomplished with no untoward results.

GYNECOLOGY & OBSTETRICS

Contribution to the Anatomoclinical Study of Fetal Deaths: Lesions of the Central Nervous System (On the Basis of 26 Cases). J. Chosson, H. Payan, Mrs. M. Bérard-Badier, G. Zographos and T. Mangiapan. Presse méd. 66:893-896 (May 21) 1958 (In French) [Paris].

Macroscopic and microscopic studies showed that lesions of the central nervous system were present in 25 infants and 1 fetus in whom death occurred in utero, during labor, or shortly after birth. Hemorrhages, found in 10 of the 17 born prematurely and in 4 of the 9 born at term, predominated. Other but less frequent findings were various types of congestive and infiltrative lesions, calcareous or pseudocalcareous deposits, thickening of the medullary leptomeninges, and hydrocephalus. General conclusions in regard to the deaths of newborn infants cannot be drawn from the findings in these cases, but they do provide a basis for certain observations. 1. The anatomic lesions seem to be related to a combination of several factors, and it is usually hard to say which of these factors is predominant. Essentially, they are of 3 kinds: (1) the pathological conditions of pregnancy; (2) placental changes, usually evidenced by microscopic lesions in the placenta; and (3) the unfavorable circumstances accompanying labor, chief among which is the fetal anoxia that leads to cerebromeningeal vascular congestion. 2. A thorough autopsy will usually provide an explanation for the death, but in most cases the explanation will be

incomplete because of the difficulties encountered in trying to arrive at the exact cause. It is not always possible, for example, to say whether a meningeal hemorrhage was caused by trauma or whether it is merely an accompanying lesion. Similarly, it may be difficult to determine the part played in the death of the infant by severe disease in the mother. Finally, the exact causes of defects in the ovum, of hydramnios, and of malformations cannot as a rule be determined.

3. Purely mechanical and obstetric causes become increasingly evident as the birth weight rises. Difficult forceps deliveries and fetopelvic disproportion are much more important in infants with higher birth weights, but even here it is not always easy to determine the part due to trauma and that due to preexisting fragility. An excellent example of these difficulties is provided by a case characterized by maternal tuberculosis, fetal distress, forceps delivery, and cerebral lesions of the meningeal and intraventricular type with a nonspecific perivascular inflammatory reaction. 4. Visceral vasodilatation found after maternal hibernation or infantile disconnection suggests that hibernation should be reserved for severe cases in which the advantages of the procedure outweigh its dangers. Largactil given in small doses for short periods, e. g., during labor, presents no danger. Complications, however, must be expected if it is given in larger doses and for fairly long periods. 5. Malformations for which no cause could be found were observed in 8 of the 26 infants, or a little less than one-third of the cases. Obstetricians should be on the alert for curable malformations; some of these are not clinically apparent, but they must be detected early if they are to be operated on in time.

Cervical Pregnancy: A Case Report. H. W. Mayberger. Obst. & Gynec. 11:657-660 (June) 1958 [New York].

The patient was a 24-year-old woman who had had a normal delivery in May, 1955. In March, 1956, an ectropion of the cervix was cauterized. A Papanicolaou smear was reported negative. The patient gave a history of having had her last period on Aug. 12, 1956. She had been in an automobile accident on Nov. 6 and was emotionally disturbed. On Nov. 20 she had a desire to defecate and began to bleed. This became more pronounced, and she had a sudden gush of clear fluid from the vagina. The following day she passed a nonmacerated fetus. The cord was severed. Bleeding suddenly became brisk, and she was hospitalized because shock threatened. After blood replacement and with the patient under intravenous Pentothal sodium anesthesia, a speculum was inserted into the vagina, and many clots were evacuated. The cervix filled the upper vagina and was cup-like in appearance. Occupying about two-thirds of the ballooned-out cervical canal was the placenta, which came to within 1 cm. of the external cervical os on the left and extended upward just beyond the midline on the right. The placenta peeled away with little more difficulty than would be expected from a normally implanted one. A finger was introduced with ease and without dilatation into the endometrial cavity, which was found to be small and empty. The patient's postoperative stay was uneventful.

Cervical pregnancy is rare and almost always terminates in early spontaneous abortion. Early recognition is essential, since complications may be sudden, severe, and fatal. Vaginal bleeding, usually painless, is the chief complaint, and because of the paucity of cervical musculature, with the consequent inability to contract, profuse hemorrhage usually follows any attempt at removal of the placenta. Trophoblastic invasion frequently causes rupture of the cervix. Treatment is directed primarily at hemorrhage and shock and varies from careful observation to total hysterectomy. Death may occur in 20% of cases.

Pulmonary Hyaline Membrane Contamination of the Lungs by Fluid of the Birth Canal: Studies in Rabbits Demonstrating a Hazard of Obstetric Analgesia. F. F. Snyder. Obst. & Gynec. 11:599-616 (June) 1958 [New York].

The author attempted to investigate to what extent the fluid and cells of the birth canal are present in the lungs of rabbit fetuses which died during labor or soon afterward, following administration to the mother of an analgesic agent such as meperidine (Demerol), alphaprodine (Nisentil), methadone, or various morphine derivatives. Autopsies were performed on 281 rabbits born at full term, of which 194 were stillborn and 87 were alive at birth but died within 24 hours. The animals belonged to 130 litters in which at least 1 death occurred during labor or shortly afterward; the total births were 597, among which 312 fetal or neonatal deaths occurred. The analgesic agents were administered to the mother during labor at 31 days. The lungs were contaminated with blood, epithelial cells, and amorphous debris in 95% of the 281 autopsies. Large areas of the alveoli and bronchioles of both lungs were involved in 56% of the autopsies. Autopsies were made also on a control group of 164 newborn rabbits, the total number born in 30 consecutive litters. These were killed by chloroform inhalation within 12 hours after birth. There were no fetal or neonatal deaths in these 30 litters in which no drugs were administered. The lungs of these control animals showed only minor amounts of erythrocytes and cellular debris in the air passages; there was no massive contamination of the air passages, such as occurred in more than half of the perinatal deaths.

The entrance of the fluid and cellular debris of the birth canal into the air passages demonstrates fetal respiration during the second stage of labor. Increase in the duration of labor is accompanied by increase in the contamination of the air passages. The demonstration of fetal respiration during labor affords a clue to the origin of pulmonary hyaline membrane. The entrance of the contents of the birth canal into the fetal air passages during labor accounts for the foreign matter in the lungs of the newborn rabbit; the displacement of the eosinophilic matter in a membrane-like layer along the walls of the alveoli and bronchioles results from the expansion of the airpassages with the entrance of air. The foreign cellular debris in the lungs of litter mates expelled through the same birth canal is strikingly similar; however, dispersion of it in the form of a film does not occur in the stillborn animal. Atelectasis occurs in regions of the lungs which show membrane-like distribution of the foreign matter. The action of the analgesis drugs during labor on the fetus involves narcosis, anoxemia, prolonged exposure in the birth canal, and contamination of the air passages.

PEDIATRICS

The de Toni-Fanconi Syndrome with Cystinosis: Clinical and Metabolic Study of Two Cases in a Family and a Critical Review on the Nature of the Syndrome. H. G. Worthen and R. A. Good. A. M. A. J. Dis. Child. 95:653-688 (June) 1958 [Chicago].

The de Toni-Fanconi syndrome, which is a clinical constellation characterized by resistant rickets, acidosis, glycosuria, hyperaminoaciduria, and organic aciduria, belongs to a group of diseases based on abnormalities in renal tubular function. The renal abnormality in patients with the de Toni-Fanconi syndrome consists of a deficient tubular reabsorption of phosphorus, amino acids, and glucose along with a deficiency in the tubular mechanism for reabsorbing base without acid. The presence of cystinosis in two patients with this syndrome, who belonged to the same family, was diagnosed during life by the demonstration of typical cystine crystals in the bone marrow and the cornea. Both patients developed acidosis and rickets at an early age.

The first patient failed to respond to therapy until very large doses of base and vitamin D were given, although after the rickets had healed the large dosage of vitamin D caused hypercalcemia. This patient died during the course of an upper respiratory infection, which was complicated by an electrolyte disturbance in which hypopotassemia, hypercalcemia, and acidosis predominated. The second patient has done quite well save for moderate dwarfism and minimal rachitic stigmas. Despite x-ray evidence of healing of the rickets, the chemical abnormalities of this disease persisted until massive dosage of vitamin D was instituted. The acidosis has continued to be resistant to therapy, and the plasma bicarbonate level has remained low in spite of massive doses of sodium and potassium. However, after intensive vitamin D therapy was instituted, the acidosis improved, and the amount of extra cation required to keep the serum bicarbonate level within normal limits was sharply reduced. Both patients had an almost constant glycosuria, and fasting blood sugar levels indicated that the glycosuria was renal in origin. Both patients had hyperaminoaciduria, and studies of individual amino acid excretion, carried out with filter-paper chromotography, detected 10 amino acid spots in contrast to the 3 or 4 spots found in normal urine. Increased organic aciduria was detected in both patients by the titration technique of Van Slyke and Palmer. Since the unmeasured anion fraction of the plasma was usually within normal limits, the organic aciduria is postulated as being due to decreased tubular reabsorption of filtered organic acids rather than to an increased plasma level. Despite the low levels of serum phosphorus, both patients had relative hyperphosphaturia. The second patient demonstrated absolute calciuria and phosphaturia. Since the de Toni-Fanconi syndrome in patients without cystinosis is similar to the syndrome which accompanies cystinosis, it is conjectured that the de Toni-Fanconi syndrome occurring without cystinosis is due to an inhibition of the sulfhydryl dependent enzymes by a different oxidizing agent which has an action similar to that of cystine. If sulfhydryl inhibition is the basis for the tubular abnormality, the possibilities of developing effective therapy are much more promising.

Comparison Study: Silver Nitrate and Oxytetracycline in Newborn Eyes: A Comparison of the Incidence of Conjunctivitis Following the Instillation of Silver Nitrate or Oxytetracycline into the Eyes of Newborn Infants. P. L. Mathieu Jr. A. M. A. J. Dis. Child. 95:609-611 (June) 1958 [Chicago].

Since the introduction of the Credé procedure for preventing ophthalmia neonatorum with silver nitrate, antibiotics have become available which are more effective against both gonorrheal and other ocular infections common in the newborn infant. The changing pattern of maternal infections since the advent of the sulfonamides has resulted in some instances in a reduction of gonorrheal infections and a relative increase in the incidence of other pathogens. The ability of penicillin to evoke sensitization reactions upon topical application limits its value in prophylaxis. In view of the diversity of pathogens that may be encountered in neonatal conjunctivitis, it is conjectured that a

broad-spectrum, nonsensitizing antibiotic might afford the infant more satisfactory protection. Oxytetracycline was selected for a trial substitute for silver nitrate, as it is effective against the great majority of organisms that cause neonatal conjunctivitis, has been used successfully in treating inclusion conjunctivitis, does not irritate the eyes as does silver nitrate when administered locally, and topical application does not sensitize patients to subsequent systemic administration of the preparation.

Oxytetracycline was used alone in 908 infants, and silver nitrate was used alone in 106 infants. In the remaining 125 of a total of 1,139 infants, oxytetracycline was used in one eye and silver nitrate in the other eye. Of the 106 infants given the conventional Credé treatment with 2% silver nitrate, a discharge was present with inflamed eyes or the lids were swollen in 46% of the infants on the first day after instillation. The incidence decreased steadily through the 5th day, no discharge remaining in the eyes of any infant by the time of examination 6 weeks later. The 908 infants given oxytetracycline showed a much lower incidence of discharge throughout the first 5 days. The highest incidence (8.8%) occurred on the 2nd day, the incidence falling steadily to 0.4% on the 5th day. None of the 846 babies of this group seen 6 weeks later had any evidence of opthalmic inflammation. The third group of infants given silver nitrate in one eye and oxytetracycline in the other permitted a rigorous comparison of the 2 drugs. In this group oxytetracycline was associated with a lower incidence of inflammatory reactions, and the only instance of a frankly purulent discharge from which pneumococcic organisms were recovered was in an eye in which silver nitrate was used. At some time during the first 5 days 6% of those given oxytetracycline were affected, compared with 46% of those given silver nitrate.

BCG Vaccination of Prematurely Born Infants. F. Eckardt. Monatsschr. Kinderh. **106**:261-263 (May) 1958 (In German) [Berlin].

It is generally known that the tuberculin sensitivity of very young infants is considerably less than that of older children. For this reason it is surprising that after BCG vaccination a high percentage of premature infants show a positive tuberculin reaction. However, this positive reaction is only a reflection of the desired effect; it is not an exact indicator of the formation of antibodies. Nevertheless, tuberculin tests are now generally accepted as indicators of the efficacy of BCG vaccination. The author has used BCG vaccination since 1954 in prematurely born infants. The vaccination was not carried out immediately after birth but while the infants were still receiving care for prematurity, that is, while they were only a few weeks old. The vaccination was carried out by producing 2 wheals on the left upper arm. The efficacy of the vaccination was ascertained by tuberculin tests, which were given at different intervals after the vaccination. Since many of the infants were from rural regions, the follow-up often left something to be desired. Thus, when the percutaneous tests proved negative, it was not always possible to carry out repeated intracutaneous tests.

The author reports on 140 premature infants who were vaccinated with BCG. The tuberculin reaction became positive after vaccination in 132 (or 94.3%), and it remained negative in 8 of the premature infants. The negative outcome of the test seems to depend mostly on the extremely young age and not on the weight of the premature infants, because all 8 negative tuberculin reactions occurred in infants who were vaccinated before they were 8 weeks old. The interval between vaccination and testing likewise seemed to be of no importance in the outcome of the test. No undesirable secondary effects resulted from the vaccination. The author concludes that BCG vaccination of premature infants is promising in that it protects infants against tuberculosis before they are discharged from the premature station and thus reduces the period of dangerous exposure to tuberculous infections.

Quantitative Tests on the Sensitivity to Antibiotics of Escherichia Coli Strains Isolated in 1957. L. Tóth and A. Vörös. Monatsschr. Kinderh. **106**:251-253 (May) 1958 (In German) [Berlin].

In the Children's Clinic in Pécs, Hungary, intestinal infections due to Escherichia coli became increasingly resistant to antibiotics. More and more children with such infections failed to respond to antibiotics, so that in 1957 an institutional epidemic developed. The authors made studies on strains that had been isolated in 1950, in 1956, and during the 1957 epidemic. The strains were identified on the basis of their O, B, and H antigens by means of agglutination. The quantitative sensitivity to streptomycin, Chloromycetin, Aureomycin, Terramycin, and neomycin was ascertained by means of in vitro dilution tests. A total of 157 strains of E. coli were studied.

The strains that had been isolated in 1950-1951 were still without exception sensitive to the broad-spectrum antibiotics, but from then on resistant strains gradually emerged. The strains that were isolated during the epidemic of 1957 proved resistant to streptomycin, Chloromycetin, Aureomycin, and Terramycin and were sensitive in vitro only to neomycin; this corresponded to the clinical experiences. A number of other investigators also found neomycin effective in children with dyspeptic-diarrheal disturbances caused by E. coli strains. The authors feel that the development of resistance

to antibiotics is chiefly due to administering an antibiotic without first ascertaining its efficacy, continuing its use for prolonged periods, and giving an antibiotic in low, ineffective doses.

Metastatic Embryonal Rhabdomyosarcoma in the Growing Skeleton: Clinical, Radiographic, and Microscopic Features. J. Caffey and D. H. Anderson. A. M. A. J. Dis. Child. 95:581-600 (June) 1958 [Chicago].

Five children, all of whom had primary malignant tumors located in muscles and who presented the microscopic picture of embryonal rhabdomyosarcoma and scattered metastases in the skeleton which were identified roentgenographically, were studied. There were 4 boys and 1 girl, ranging in age from 2½ to 11½ years of age. The first sign of disease in 3 of the patients was the appearance of the primary swelling—located in the dorsal part of the thoracic wall in one, in the foot in another, and in the orbit in the third. In the 2 remaining patients, pain and limitation of motion at the sites of secondary tumors in the skeleton—in a shoulder in one and in the lumbar spine in the other—were the primary clinical manifestations. In these 2 patients, primary tumors had been overlooked at earlier examinations. Roentgenographically, skeletal changes of these metastatic rhabdomyosarcomas were almost exclusively destructive, and they resembled the skeletal findings of neuroblastoma, both in the character of single lesions and in the pattern of distribution in different bones. The spine was affected more frequently and more extensively in these rhabdomyosarcomas than in neuroblastomas.

Characteristic changes in the blood and bone marrow smears readily differentiate multiple leukemic bone lesions from those of metastatic skeletal rhabdomyosarcomas. Phosphatase activity was increased to 41 and 44 Bodansky units, respectively, in 2 cases, and the erythrocyte sedimentation rate was accelerated in 2 cases. Biopsy specimens of the primary and metastatic lesions and tissue culture of microscopic sections provide the only means of satisfactory conclusive diagnosis, although the tumor may differentiate between the time of the initial biopsy and a later biopsy or postmorten examination. The identifying histological features are the pleomorphism, the pattern of nests of cells in the lacunae of a network of collagen fibers, the irregular bosselated appearance of the nuclei in less well-differentiated cells, the presence of fuchsinophil granules in many of the cells, the row of small cells along the trabeculae, and the lack of a basement membrane. External irradiation was effective in the 4 patients in whom it could be used satisfactorily. The fifth patient did not respond to irradiation, and death occurred shortly after the institution of such therapy. Pain, tenderness, muscular spasm, and limitation of motion were all improved after a few days of radiation therapy, and it provided pain-free existence for patients suffering from excruciating bone pain. Relapses occurred in all cases 6 to 8 weeks after therapy had begun; radiation became ineffective, and new skeletal tumors appeared and grew rapidly in the sites of irradiation. Cortisone provided some relief in 1 patient for an initial period of several weeks. Recognition of and accurate classification of various types of metastatic embryonal rhabdomyosarcoma are essential for better knowledge of the course and pathogenesis of this neoplasm and are important from the standpoint of developing specific chemotherapeutic agents against this entity.

Hyaline Membranes in the Lungs of Newborn Infants. W. H. Brummelkamp. Nederl. tijdschr. geneesk. 102:662-668 (April 5) 1958 (In Dutch) [Amsterdam].

In connection with the case of a newborn infant, who died 5 hours after birth and in whom hyaline membrane was found in the lungs, the author reviews the literature on this condition and describes the results of pathological studies carried out on 45 prematurely born infants with hyaline membrane in an Amsterdam hospital. He emphasizes that hyaline membranes are found almost exclusively in 2 groups of newborn infants, namely, (1) in premature babies and (2) in full-term children born by cesarean section or in breech presentation, as well as twins and infants with hemorrhages into the ventricles. Hyaline membranes have their origin in a transudate arising from the immature lung tissue of premature babies, which is unable to adjust itself to postnatal changes in the pulmonary circulation. The development of transudation and hyaline membranes in fully developed children might be explained by the hypothesis that the absence of physiological compression of the cranium, which is commonly seen in twins and in many children born by cesarean section or breech presentation, results in insufficient stimulation of the cerebral centers of the parasympathetic vasomotor nerves, whereas ventricular hemorrhage causes overstimulation.

OTOLARYNGOLOGY

Laryngeal Stridor in Rheumatoid Arthritis. C. S. Darke, L. Wolman and A. Young. Brit. M. J. 1:1279-1282 (May 31) 1958 [London].

The authors report on 2 men and 3 women, between the ages of 57 and 67 years, with advanced rheumatoid arthritis in whom laryngeal stridor occurred. The onset of this complication occurred when the generalized joint disease appeared to be quiescent. Tracheotomy became necessary in 4 patients. Two of the patients died, and autopsy was

performed on both. It revealed indisputable evidence of nerve degeneration and mobile cricoarytenoid joints, even though chronic inflammation of the joints was present in 1 patient. In the second patient the microscopic changes in the nerves appeared to be due to ischemic neuritis resulting from a rheumatoid type of arteritis of the vasa nervorum. The difficulty of distinguishing between an arthritis of the cricoarytenoid joints leading to stridor and a bilateral abductor paralysis of the vocal cords is emphasized. Clinical examination may not provide sufficient evidence, and in the final analysis microscopic examination of the joints, muscles, and nerves is needed. Although in patients with rheumatoid arthritis in whom laryngeal stridor occurs involvement of the cricoarytenoid joint may be responsible, it is not the only factor, and nerve degeneration leading to abductor paralysis can be the cause.

Complications of Mastoiditis in the Antibiotic Era. R. C. Morrow. Ann. Otol. Rhin. & Laryng. 67:41-60 (March) 1958 [St. Louis].

The author's own observations and the literature reports indicate that dangerous complications of mastoiditis are continuing to occur. Often they are the penalty of reliance on antibiotics alone in earlier stages of the disease. Once they occur, they may be insidious and difficult to diagnose under the cloak of antibiotic therapy. It appears wise to go ahead with mastoidectomy if any of the classical signs of acute mastoiditis are present, such as postauricular swelling, mastoid tenderness, sagging of the posterior canal wall, or x-ray evidence of bony breakdown. This statement is made in spite of the fact that the author's own series included 22 patients with acute and subacute mastoiditis treated with antibiotics alone. Unanticipated intracranial extension was sometimes found at operation. Surgical treatment is indicated when acute mastoiditis has subsided after antibiotic therapy, but there still is a lingering and unexplained malaise, low-grade fever, anemia, leukocytosis, pain in and around the ear, headache, or vertigo.

In meningitis associated with otitis media, the possibility of mastoid surgery should be kept constantly in mind and becomes indicated when the patient's progress is not prompt and satisfactory. A nonsurgical management with intensive antibiotic therapy appears justified when the meningitis and the otitis are of simultaneous onset. If, however, an ear infection seems to respond well to antibiotics but is followed in a week or more by meningitis, a masked mastoiditis should be suspected, whether or not there is recurrent otorrhea, and surgery becomes advisable. At least 3 groups of meningitis cases call for consideration of mastoid surgery: (1) those with delayed onset in the course of acute otitis media; (2) those with early onset in acute otitis media but resistant to antibiotic therapy; and (3) those developing in the course of chronic otitis media. The proper control of chronic otitis media is an important feature in the prevention of dangerous complications. Situations demanding prompt surgical interventions must be differentiated from ordinary exacerbations in the chronic problems, in which delay is permissible, conservative treatment worthy of trial, and surgery scheduled when convenient.

In the presence of an acute exacerbation of chronic otitis media, certain features must be taken as warnings of serious complications. Pain in the ear, in a patient whose usual exacerbations are painless, is a danger sign. Pain above and behind the ear is even more significant. Mastoid tenderness, and especially tenderness superoposteriorly to the mastoid, should be given serious weight in a chronic case. Headache, even if only frontal, is important. General malaise, listlessness, anorexia, slight temperature elevation, and slight leukocytosis should be looked on with suspicion. Even mild degrees of vertigo or ataxia, changes of mentation, or clouding of consciousness should be respected. Above all, the observer should follow up even subtle suspicions with adequate neurological examination, lumbar punctures, electroencephalography, and other studies and should be ready to operate on slight evidence.

THERAPEUTICS

Buccally Administered Streptokinase: Clinical and Experimental Observations. I. Innerfield, H. Shub and L. J. Boyd. New England J. Med. 258:1069-1074 (May 29) 1958 [Boston].

Enzyme therapy has been identified as "a new avenue of therapeutic approach to the problems of thromboembolism and inflammation." Several workers have investigated the possibility that the anti-inflammatory effect of proteolytic enzymes is due, in part, to their effect on tissue permeability. The implied interrelation between proteolytic action on connective tissue and increased tissue permeability suggested that proteolytic enzymes could be administered buccally by placing a protease tablet or lozenge against the surface of the buccal mucosa. This report is concerned with the buccal administration of the enzyme, streptokinase. Laboratory studies were made on selected diabetic patient. Bleedings were obtained for 10 consecutive weeks. The first 4 weeks comprised a control period. Tablets containing 20,000 units of streptokinase were given buccally 4 times daily to each patient during the next 6 weeks. The Ouchterlony gel-diffusion technique was utilized for demonstrating specific antibodies. The method for determining serum antithrombin levels with the use of a human thrombin preparation is described. Complete and

differential blood cell counts, urinalyses, prothrombin and fibrinogen determinations, and determinations of bleeding and coagulation times were carried out each week.

Clinical studies were made on 74 patients, of whom 51 presented evidence of recent trauma or acute inflammation, including hematoma, cellulitis, abscess, upper respiratory infection, and thrombophlebitis. Twenty-three patients had chronic thrombotic or inflammatory conditions, or both, such as indolent leg ulcer, retinal vein thrombosis, chronic bronchitis, and bronchiectasis. Tablets containing 20,000 units of streptokinase activity were administered by the buccal route every 4 hours for from 1 day to 14 weeks. Each patient was instructed to retain the tablet either sublingually or in the buccal pouch. Several illustrating histories are presented. Experimental and clinical evidence was obtained that buccal administration of streptokinase in tablet form results in mucosal penetration, enhanced serum antithrombin activity, and impressive anti-inflammatory effects. Enzyme therapy can now be used in the long-term management of chronic bronchitis, bronchiectasis, retinal vein thrombosis, indolent leg ulcer, acne, and migratory phlebitis.

The mechanism underlying the anti-inflammatory or thrombolytic effects of protease remains speculative. The capacity of streptokinase to participate in the conversion of plasminogen to plasmin is probably related to the phenomena of clot lysis and reversal of inflammation. So far as buccal administration is concerned, the abundance of salivary plasminogen provides a substrate for the streptokinase-plasminogen interaction. Immunological data obtained imply that one of the most anti-inflammatory effects induced by buccal administration of streptokinase is the elicitation of specific antistreptococcic antibodies. Buccal streptokinase therapy provides an effective and simple means for reversing inflammation. Side-effects are minimal. No local irritative signs developed in the mouth in any of the 74 patients comprising the "clinical" phase of this study or in the 14 patients constituting the "laboratory" phase. The sole systemic side-effect was an occasional mild gastrointestinal disturbance of brief duration.

Chloramphenicol Combined with Tetracycline in the Treatment of Brucellosis. M. Parravicini. Riforma med. **72**:477-479 (April 26) 1958 (In Italian) [Naples].

Sixteen patients, 21 to 52 years of age, with brucellosis due to Brucella melitensis were treated with chloramphenicol combined with tetracycline for a period of 7 to 24 days. The values of the Widal-Wright agglutination test were high before this treatment began. Daily oral dosage of the combined treatment consisted of 800 mg. of chloramphenicol and 400 mg. of tetracycline. Some patients received daily dosages of 2.4 Gm. of chloramphenicol and 1.2 Gm. of tetracycline at the beginning of this study. Since the higher dosage produced approximately the same results as the lower dosage, subsequently the lower dosage was given to all patients.

Remission of fever developed within 2 to 6 days after onset of this chemotherapy in all the patients, including 2 in whom the disease tended to become chronic. These 2 patients had previously been treated with penicillin and chlortetracycline (Aureomycin) without benefit. Relapse of fever developed in only 1 patient 30 days after the beginning of the treatment. Combined action of chloramphenicol (daily dosage of 1.2 Gm.), tetracycline (daily dosage of 600 mg.), and vaccine therapy produced remission of fever in this patient in 5 days. A severe form of herpetic stomatitis was associated with brucellosis in 1 patient, chemotherapy brought about complete remission of the former after 3 days of treatment. After remission of fever, vaccine therapy administered intravenously was instituted in addition to the main chemotherapy in one-half of the patients, in whom the disease was in an advanced stage. No significant difference in results was observed between the patients who received the additional vaccine therapy and those who did not. The patients were followed up for a period of 5 to 9 months after remission of the disease. The treatment was well tolerated.

Gangrene of the Extremities Following Cardiac Infarction and Noradrenaline Therapy. D. Greenbaum. Lancet **1**:1103-1104 (May 24) 1958 [London].

A 56-year-old man was hospitalized 3 hours after he had collapsed with severe substernal pain. His extremities were cold and blue, his skin was pale and clammy, and his temperature was 95.5 F (35 C). The pulse was feeble. Electrocardiography showed gross ST and T changes in all leads and a complete heart block. Four hours after admission there was no change in the patient's general condition and blood pressure, and an intravenous infusion of arterenol, 1:200,000 in 5% dextrose, was begun. The concentration was increased to 1:100,000 after an hour to reduce the amount of fluid administered intravenously. The blood pressure rose almost immediately. The pulse rate rose, and electrocardiography showed that the sinus rhythm had returned. The infusion was maintained for 68 hours, after which the blood pressure remained normal. The dose of arterenol was 20 mg. on the first, 16 mg. on the second, and 8 mg. on the third day. Toward the end of the third day the peripheral pulses became difficult to feel. On the 4th day the patient complained of stiffness of the fingers of his left hand, and during the next 2 days patches of gangrene appeared on his hands and feet. Thereafter gangrene spread gradually up all 4 limbs. No urine

was passed during the first 36 hours. The patient became delirious and progressively weaker. He died 14 days after admission. The blood urea level on the day of death was 212 mg. per 100 cc.

Autopsy revealed extensive cardiac infarction. The whole of the posterior wall of the right ventricle, the posterior two-thirds of the interventricular septum, and the whole of the posterior wall of the left ventricle were necrotic. The left coronary artery was much smaller than usual, most of the blood supply to the heart coming from the right coronary artery, which was occluded by a thrombus. The limb arteries were apparently free from thrombus as far as the line of demarcation of the gangrene. The liver and the spleen were congested, and the kidneys appeared normal. There was moderate pulmonary edema. Apart from the limbs, the testes were the only organs to show ischemic necrosis. The use of arterenol must have made an important contribution to the vasoconstriction that led to gangrene. The spread of the gangrene for 11 days after the infusion had been stopped indicates the equal or greater importance of the low cardiac output. These 2 factors may explain the remarkable extent of the gangrene. In the other published cases it usually involved little more than the tip of the nose and the digits.

Spiramycin for the Treatment of Chronic Osteomyelitis. E. Marchis and A. Quarta. Riforma med. 72:499-504 (May 3) 1958 (In Italian) [Naples].

Therapeutic results from an Italian proprietary preparation of spiramycin administered to 16 patients and from other antibiotics administered to 8 patients with chronic osteomyelitis were compared. Among the patients of the first group, the disease affected the lower extremities in 12, upper extremities in 3, and hip bone in 1. A dosage of 2.5 Gm. of spiramycin given on the first day of drug treatment was followed by a daily dosage of 2 Gm. given in 4 divided doses for a period of 7 to 10 days. Spiramycin produced almost complete remission of the symptoms of inflammation in 2 patients. Partial regression of inflammation ascribed to spiramycin was obtained in the remaining 14 patients, who subsequently received surgical therapy. Surgical wounds were either completely sutured or a draining catheter was used for 2 to 4 days. Complete clinical healing in all the patients was observed within 10 to 20 days after the operation. Combination of drug and surgical therapy was repeated in 1 patient only, and subsequent clinical healing followed.

In order to appraise the extent of healing attributable to spiramycin and to surgical therapy, respectively, comparison was made between the patients of the first group who received spiramycin and the second group of 8 patients who received other antibiotics combined with surgery. These other antibiotics produced partial regression of inflammation in 6 patients. Decrease in leukocytosis was the only favorable sign observed in the second group. All 8 patients underwent surgical operation, and clinical healing followed after a prolonged postoperative period. Spiramycin has thus proved to be an efficacious therapeutic agent for treatment of chronic osteomyelitis. Another advantageous feature of spiramycin was a perfect tolerance of the patients to the drug, even during prolonged periods of drug treatment.

Nephrotic Syndrome Complicating Mercurial Diuretic Therapy. M. Riddle, F. Gardner, I. Beswick and I. Filshie. Brit. M. J. 1:1274-1277 (May 31) 1958 [London].

The authors report on 4 women and 1 man, between the ages of 61 and 80 years, with congestive heart failure who were treated with mercurial diuretics, such as mersalyl, Unephral (a proprietary combined preparation of mercuramide and theopylline), chlormerodrin, and mercaptomerin, for long periods. The nephrotic syndrome characterized by heavy proteinuria and generalized edema appeared to follow the use of the mercurial diuretics in these patients, 3 of whom died. At autopsy the macroscopic and microscopic findings in the kidneys were the same in all 3 patients. There were necrosis in the renal tubules, and degeneration of the epithelium, together with regenerative activity. Infiltration of tubular cells with isotropic and anisotropic fat was also present. These necrotic and degenerative changes were most often found in the proximal convoluted tubules, but they were also seen in the distal convoluted tubules and in the loops of Henle. Regeneration of tubular epithelium was a striking feature in all 3 patients. The regenerated cells often did not reconstitute the tubular linings, but instead formed loose masses in the lumens. These pathological changes resembled in quality those seen in patients with acute mercuric chloride poisoning. An excessive amount of mercury was found at autopsy in the renal tubules of 2 patients. None of the patients had any previous history of renal disease, and 3 of them had normal urine when treatment with mercurial agents was begun.

These findings strongly suggest that the renal damage in these patients should be attributed to the long-term mercurial diuretic therapy. It seems that the nephrotic syndrome is a more frequent complication of such therapy than the literature would suggest. The principal warning signs of the onset of the nephrotic syndrome complicating mercurial diuretic therapy are: (1) failure of proteinuria to decrease after a satisfactory diuresis; (2) increasing edema, especially of the arms and face, in the absence of other signs of cardiac failure; and (3) absence of diuresis after mercurial therapy. Treat-

ment of the fully developed syndrome proved to be unsatisfactory. Early recognition of the condition and cessation of mercurial therapy before irreparable renal damage has occurred are of the utmost importance if a fatal outcome is to be avoided.

PATHOLOGY

What Cytology Now Offers in the Diagnosis of Bone Tumors. A. Sicard, L. Orcel and C. Marsan. Semaine hôp. Paris 34:1409-1414 (May 18) 1958 (In French) [Paris].

Many difficulties are encountered in differentiating between inflammatory, dystrophic, and tumoral lesions of the bone, and in attempting to decide whether the underlying process is benign or malignant. The functional signs are practically the same in each case, and the roentgenographic picture is made up of shadows which are sometimes so delicate that no definite opinion can be arrived at. The resulting delay in diagnosis, with attempts at empirical or trial therapy, may mean loss of the time during which a cure or stabilization of the lesion might be effected. The possible value of cytological study as a complementary method of diagnosis in patients with bone tumors has therefore been under investigation by the authors since 1954. Biopsy, either by direct surgical approach in bones that are easily accessible or by transcutaneous puncture with a trocar, has long been used, but unfortunately the results obtained by the histological study of bone tissue are not always so certain as those obtained by the histological study of visceral or soft-tissue tumors. Accordingly, the authors decided to compare the results obtained histologically with those obtained cytologically.

Simple aspiration with a needle or a trephine will provide specimens that are satisfactory to the cytologist, but specimens for histological study must be obtained by drilling with a saw-toothed trephine, 4 mm. in internal diameter, mounted on a high-speed motor and revolving within a guide. The use of this instrument does not cause bleeding, and it has never, in the authors' experience, been followed by exacerbation or extension of a malignant process. Complications that might arise when it is used on the vertebral bodies can be avoided by a special location finder devised by the authors, with which the trephine can be accurately placed and prevented from penetrating too far into the bone. Some of the negative results in this series were probably due to the fact that this safety device kept the trephine from reaching an initial lesion lying deep within the vertebral body.

The criteria of malignancy in osseous cytology are generally the same as those described in genital cytology. The position of the malignant cells in the marrow, however, makes it necessary to distinguish between them and the tumoral cells of the hemopoietic system—something that is often difficult to do. No cytological diagnosis could be arrived at in 30% of the first 100 cases in which both histological and cytological methods of examination were used. This figure is far from satisfactory, but it is weighted by early errors and it has been reduced by half (15%) in the diagnostic studies made during the last year. Moreover, the percentage of accurate diagnoses may be expected to increase as improvements are made in technique and as the characteristics of osseous cytology become better known. The routine use of a combination of histological and cytological methods in the diagnosis of osseous tumors seems, therefore, to be fully warranted.

Rectal Biopsy in the Diagnosis of Amebic Colitis. K. Juniper Jr., V. W. Steele and C. L. Chester. South. M. J. 51:545-553 (May) 1958 [Birmingham, Ala.].

Rectal biopsies were done on 14 patients with amebic colitis, in whom rectal ulcers were observed during sigmoidoscopic examination. Trophozoites of Entamoeba histolytica were identified positively on a single routine hematoxylin-eosin-stained section prepared from the tissue block from each of 13 patients. Trophozoites also were found in some of the stepdown sections from the 14th patient. In 2 of the 14 patients the early papular lesions described by several workers were seen at the time of sigmoidoscopy. A biopsy of 1 of these lesions showed an amebic crypt abscess with a small number of trophozoites. The superficial type of ulcer seen in most of the biopsy specimens was in accord with the experimental findings of Faust and Kagy, who found the interglandular areas to be attacked and invaded more often than the crypts in experimental infections in dogs; they described a "fan-like" spread across the necrotic tips of several adjacent glands, which fitted the appearance of many of the biopsy specimens obtained from the 14 patients. The presence of infiltrating plasma cells and lymphocytes about the ulcers, with a noticeable absence of polymorphonuclear leukocytes, corresponded with the description by other workers. The large numbers of eosinophils sometimes seen about amebic lesions in the colon were impressive, and so were the enlarged submucosal lymph follicles usually found beneath the amebic lesions. The latter often extended farther than did the areas of mucosal ulcers.

The results of this study emphasize the importance of the following procedural details: (1) avoidance of washing out the mucus and exudate, in which most of the trophozoites will be found, from the rectum by enemas; (2) taking care to include any available mucus or exudate with the biopsy specimen; (3) instructing the technician in the department of pathology to include all fragments of

tissue and exudate with the tissue when preparing the tissue block; and (4) examining clumps of exudate and small fragments of tissue, as well as the large specimen, for the presence of trophozoites. Biopsy of rectal ulcers is not recommended as a substitute for examination of fresh preparations, since the latter almost always will provide the diagnosis when done properly, and since the procedure is simpler. An alert pathologist, however, can recognize and positively identify trophozoites of E. histolytica on routine hematoxylin-eosin-stained slides in a high percentage of cases of amebic ulcers of the rectum, if care is exercised in the collection, preservation, and handling of the biopsy specimen. In a few cases, the pathologist may be the first one to recognize the presence of amebiasis in a hitherto unsuspected or undiagnosed case. Biopsy can also be used as a supplementary means of diagnosis, particularly when staining methods for identification of trophozoites on smears are not available to the clinician in practice.

Serum Cholesterol-Globulin Complex in Multiple Myeloma. G. L. Schless. Am. J. M. Sc. 235:562-565 (May) 1958 [Philadelphia].

The author points out that in 1956 Spain and associates reported a series of patients with multiple myeloma, in whom they noted significantly less atherosclerosis in the aorta and coronary arteries as compared with patients having cancer and with normal individuals. They associated these observations with a low serum cholesterol content. When similar findings were noted in a patient at the Pennsylvania Hospital, in whom a histological diagnosis of multiple myeloma had been made, other reports on this problem were reviewed and studies were made on 12 patients with multiple myeloma, who were collected from 5 Philadelphia hospitals. The serum cholesterol content was decreased in 8 and was normal in 4 of the 12 patients. Nine of the 12 patients exhibited an elevation of the serum globulin level; seven of the 9 patients had decreased serum cholesterol values, while in 2 the values were normal. Two of the 3 patients exhibiting normal serum globulin concentrations had normal serum cholesterol values, and in 1 hypocholesterolemia was found.

Thus, it has been demonstrated that in multiple myeloma hypocholesterolemia is associated with hyperglobulinemia. These findings suggest that an abnormal globulin molecule becomes associated with and binds some of the free serum cholesterol, in this manner reducing the amount of free cholesterol in the serum. Both hyperglobulinemia and hypocholesterolemia are of diagnostic value in multiple myeloma. Further studies are recommended on patients with multiple myeloma in whom hypocholesterolemia is associated with less than average atherosclerosis.

RADIOLOGY

Peptic Esophagitis and Peptic Ulceration of the Esophagus. B. S. Wolf, R. H. Marshak and M. L. Som. Am. J. Roentgenol. 79:741-759 (May) 1958 [Springfield, Ill.].

From the authors' review of the roentgenologic findings in patients with peptic esophagitis and peptic ulcer of the esophagus, it appears that this condition, usually of mild degree, is frequently present in association with a hiatus hernia of the direct variety. The roentgenologic findings in such cases may be minimal. In the presence of a duodenal ulcer or excessive gastric acidity and hypersecretion for some other reason, or as a result of intubation and operative intervention with the aid of general anesthesia, peptic esophagitis of severe degree involving a considerable portion of the distal esophagus may occur and may result in marked stricture formation.

There are patients in whom a variable length of the distal esophagus is lined by an atypical, embryonic, or heterotopic (Barrett) type of epithelium. This type of epithelium is also susceptible to inflammation and the occurrence of ulcers, presumably under the influence of acid gastric juice regurgitated from a hernial sac of (true) stomach. An ulcer in such a gastric-lined segment of esophagus may resemble an ordinary chronic peptic ulcer as seen in the stomach. According to Barrett, previously reported cases of chronic peptic ulcer of the esophagus have been observed in association with this developmental anomaly of the lining epithelium of the distal esophagus which went unrecognized. He therefore suggested that the term "chronic peptic ulcer" of the esophagus should be restricted to this type of lesion. Other authors have used the eponymic term "Barrett ulcer" for the connotation of the same lesion. In the absence of an inflammatory complication, the presence of a gastric-lined segment of the esophagus is not recognizable by roentgen-ray methods and may also be overlooked at esophagoscopy. When a discrete ulcer and/or stenosis is observed by these methods at some distance proximal to a typical hernial sac, the presence of a gastric-lined segment should be suspected. In such instance, the exact location of the ulcer or stricture, i.e., whether it lies within the gastric-lined segment itself or immediately proximal to this segment in normally or squamous-lined esophagus, must be determined by microscopic examination.

In the presence of a direct hiatus hernia, a peptic ulcer of discrete nature may occur in, and be localized to, the terminal portion of the esophagus without remarkable diffuse involvement of the distal esophagus and independent of gastric hyperacidity. When a discrete ulcer is present in the terminal portion of the esophagus in association

with a hiatus hernia, the possibility that a Barrett type of epithelium may be present must be kept in mind, since (1) an ulcer may occur at the distal margin of the gastric-lined segment and (2) the terminal portion of the esophagus may be lined by a mixture of squamous and Barrett type of epithelium for a short distance immediately proximal to the (true) stomach.

Arteriomesenteric Occlusion of the Duodenum. W. P. Bitner. Am. J. Roentgenol. 79:807-814 (May) 1958 [Springfield, Ill.].

The author reports on 3 female patients, between the ages of 14 and 31 years, and a 33-year-old man in whom findings on roentgenologic examination of the upper gastrointestinal tract fulfilled the criteria for the diagnosis of occlusion of the duodenum by compression of the superior mesenteric artery where it crosses the transverse portion. These criteria are as follows: 1. There should be a constant dilatation of the duodenum proximal to the midpart of the transverse portion corresponding to the point of contact with the sheath of the superior mesenteric artery. 2. Normal mucosa of the duodenum should be seen distal to the site of obstruction. 3. There should be retention of barium in the duodenum beyond the normal limit. 4. To-and-fro movements of barium should be observed within the duodenal loop proximal to the site of obstruction. Other frequently associated findings include dilatation of the pylorus and stomach, ptosis of the colon and small intestine, ptosis of the right kidney, and passage of barium beyond the site of obstruction, which may be aided by exerting manual pressure on the lower abdomen in a cephalad direction with the patient in a prone position (Hayes maneuver). The 4 patients were operated on by different surgeons, and the roentgenologic diagnosis was confirmed in all. The duodenum was opened, and a finger was inserted into the transverse portion; marked narrowing was found, and the pinchcock action caused by the simultaneous pulsations of the aorta posteriorly and the superior mesenteric artery anteriorly was palpable. A duodenojejunostomy was performed, and the recovery was uneventful.

One of the frequent causes of duodenal stasis is a chronic intermittent occlusion of the duodenal loop due to compression of the third portion of the duodenum by the superior mesenteric artery at the point where it crosses over the loop with the superior mesenteric vein and nerve. It is most frequently seen in the asthenic patient with lordosis. The traction of the mesentery is, therefore, believed to be a factor in the causation. Most of the patients have a variety of digestive complaints, such as epigastric pain, nausea, vomiting, and diarrhea. Neurological symptoms are sometimes prominent, and the condition is very commonly precipitated by severe emotional strain. It is believed that many of these patients will respond to medical treatment directed toward the relief of vomiting and the correction of dehydration, electrolyte imbalance, hyperazotemia, nutritional deficiency, and anemia, and to postural treatment aimed at reducing the pressure of the root of the mesentery on the duodenum. Conservative treatment should be assisted by psychotherapy, since the problem is not simply a mechanical one which can be cured permanently by some short-circuiting operative procedure. If careful medical therapy is unsuccessful, surgery becomes necessary. Duodenojejunostomy is apparently the procedure of choice.

Studies of Esophageal Varices Before and After Portacaval Shunts. J. A. Evans and M. A. Payne. Am. J. Roentgenol. 79:760-767 (May) 1958 [Springfield, Ill.].

The authors report on 68 patients who had roentgenologic examinations for esophageal varices before and after a venous shunt for portal hypertension. Fifty-seven patients had a portacaval shunt, 9 had a splenorenal shunt, and 2 had a shunt utilizing smaller mesenteric veins. The portal pressure was reduced in most patients with portacaval shunts to between 15 to 20 cm. by the shunt, and the final pressure was from 10 to 20 cm. of sodium chloride solution. Postoperative roentgenograms revealed disappearance of the esophageal varices within the first 6 postoperative months in most patients in whom the portal pressure was adequately decompressed. One patient had a portal vein thrombosis, and after the shunt her final portal pressure was 39 cm. of sodium chloride solution. Postoperatively her varices persisted, and 2 years later she again had a large hematemesis. There was only 1 patient whose portal pressure dropped from 41 to 19 cm. after the shunt, who clinically seemed to be well and whose successive esophagrams showed large varices; this was the only patient in the whole series whose esophagrams did not correlate with the observed portal pressure changes. Of the 11 patients with other than portacaval shunts, 6 had hemorrhages after the shunts were performed; 5 of these did not have satisfactory drops in pressure at the time of the operation, and varices remained present on their esophagrams. The 6th patient had a good postoperative pressure drop, but subsequently thrombosis of the shunt occurred and the patient died. Here again, as in the patients with portacaval shunts, the correlation of bleeding with persistent positive esophagrams was striking.

These observations show that roentgenologic examination of the esophagus for varices is an extremely useful diagnostic procedure in following the patient with portal hypertension. In the shunt series it correlates extremely well with the results expected from portal pressure determinations made

in the operating room. It also correlates closely with the observed clinical course of the patient and alerts the clinician to the danger of impending hemorrhage.

Renal Papillary Necrosis: Roentgenologic Diagnosis and Formation of Calculi. C. Lagergren and N. Lindvall. Acta radiol. 49:249-268 (April) 1958 (In English) [Stockholm].

The authors report on 52 female and 3 male patients, between the ages of 16 and 65 years, with renal papillary necrosis. Only 6 patients, all of them women, had diabetes mellitus. There was not a single case of obstruction of the urinary tract. Fifty-four of the 55 patients were examined roentgenologically; urography was performed as a rule, and pyelography was performed only in patients in whom the function of the kidney was reduced to such an extent that urograms would not have provided sufficient information. The papillary changes were bilateral in 50 patients and unilateral in 5. The necrosis was purely papillary in 24, medullary in 12, and both papillary and medullary in 18. In 21 (38%) of the 55 patients, secondary formation of calculi occurred. Typical roentgenologic appearances were observed in 52 of the 54 patients.

Only 2 of the 55 patients had an acute fulminating course; all the others had either a subacute or a chronic course. In the patients with subacute or chronic papillary necrosis, renal function may be seriously impaired during the acute attacks, so that urograms are useless. In the quiet intervals between these attacks the kidney recovers its function, though this is gradually reduced as the process continues. It is particularly typical of papillary necrosis that a series of urograms will on one occasion disclose considerably reduced concentration capacity, while on other occasions a normal state may be recorded. This variability is due to the fact that in the acute attacks, arising through acute papillary necrosis, there is a sudden flare-up of the infection accompanied by reduced renal function. When the necrotic portion has become detached, the infection recedes, and there is marked improvement in the function which may even become normal. In contrast to that, there is a progressively slow reduction of renal function associated with common chronic pyelonephritis, and improvement never occurs. When papillary necrosis is suspected on clinical grounds and the first urograms have given negative results, further examinations should be carried out, since a defective papilla is visualized in the roentgenogram when the necrotic portion has become detached, while in the early stages, before detachment has occurred, the roentgenogram may be normal.

Renal papillary necrosis is more common than it was formerly thought. In recent years the disease would seem to have changed its character, becoming more benign. As a rule, the disease occurs in combination with urinary tract infection and mainly in younger persons, particularly in women. Papillary necrosis has no pathogenic relation to diabetes mellitus or urinary tract obstruction. The condition is complicated to a considerable degree by urinary calculi, of which the detached necrotic fragments of the papilla often form the nuclei. This may be revealed by microroentgenologic examination. In most patients with renal papillary necrosis the diagnosis can now be made during life with the aid of urography or pyelography; this is important, since a clinical diagnosis can otherwise be made only with the aid of examination of papillary fragments obtained from the patient's urine or by surgical removal.

Possibilities and Limitations in the Use of Conventional Medical X-Ray Film Under Conditions of Nuclear Warfare. H. F. Nitka. U. S. Armed Forces M. J. 9:648-653 (May) 1958 [Washington, D. C.].

Medical x-ray film is radiation sensitive, but a distinction must be made regarding its sensitivity when stored, as compared with that at the moment it is loaded in a cassette containing 2 fluorescent ("intensifying") screens, which transform x-ray energy into light energy to which the film is much more sensitive. The film-screen combination is approximately 50 times as sensitive to diagnostic x-rays as the film alone. Furthermore, the sensitivity of x-ray film alone (i. e., without intensifying screen) to nuclear gamma radiation is only 1/20th of its sensitivity to diagnostic x-rays. In other words, when stored in the manufacturer's box, the film sensitivity to nuclear gamma radiation is approximately 1/1,000th of its value when actually used (with intensifying screen) by the roentgenologist. This means that medical x-ray film can be stored up to 3 days without significant damage at a radiation level equal to the maximum permissible dosage established to safeguard the health of occupationally exposed adults, which is 0.3 r per week.

There are 3 main sources of significant radiation after an air burst of a nuclear bomb: 1. The initial burst emits high-energy gamma radiation and neutrons. 2. The neutrons of the initial burst induce gamma radiation on the earth to a considerable extent within a 1-to-2-mile radius from ground zero. 3. Radioactive particles are formed in the column and the fireball of the burst and yield the so-called fall-out. Near ground zero of a nuclear explosion, medical x-ray film and equipment are rendered useless. However, general destruction in this area is so complete that no means for medical roentgenography would be available, regardless what roentgenographic system would be used. For distances greater than 1 mile from a nuclear air burst, storage in a basement would provide sufficient protection for medical x-ray film from the initial blast. For

surface blasts, protection against fall-out radiation must be considered in addition to shielding against the initial blast. Basement storage of film material will be adequate in most cases. For transport of film through heavily contaminated areas, monitoring of the dosage to which human life is exposed will indicate the time limit up to which film might be usable. As an additional precaution, particularly against scattered gamma radiation from the initial blast, 2 small concrete or brick vaults, to be placed in opposite basement corners, are recommended for film storage. The danger of reducing the diagnostic value of a roentgenogram due to contamination of the developer solution is considered insignificant. Medical roentgenography with conventional x-ray film will be feasible in the neighborhood of a nuclear explosion without extreme measures for protecting the film.

Lipomas of the Colon, With Report of Five Cases. R. P. Henderson, E. J. Harris and J. M. Packer. Am. J. Roentgenol. 79:843-849 (May) 1958 [Springfield, Ill.].

The authors report on 4 women and 1 man, between the ages of 38 and 76 years, with lipoma of the colon who were admitted to the Mississippi Baptist Hospital in Jackson during the last 6 years. All the patients were subjected to a roentgenologic examination of the colon before surgical exploration. The diagnosis of lipoma was suggested in 3 of them. The characteristic appearance of a lipoma, the second most common benign tumor of the colon, was present in 2 of these 3 patients; it was that of an intramural extramucosal tumor with smooth margins, slightly lobulated, and with a broad base. In the third patient, the smooth margins and broad base were also present, but the tumor was not lobulated. In 2 of the patients the tumor appeared to be somewhat compressible on the multiple spot roentgenograms. Lipomas tend to be softer than other tumors when compression is used. Since the radiolucency of a lipoma cannot be recognized on conventional colon examination, again compression spot roentgenograms are of help, because the margins of the growth may not be clearly outlined within the barium-filled colon without compression.

The possibility of a lipoma should be considered in any case of intussusception in an adult. Surgery is the only treatment, and excision is indicated in all patients with a tumor of the colon, regardless of the roentgenologic impression as to the nature of the tumor. Lipomas do not become malignant, but they are symptomatic in more than 80% of the patients. Even a suggestive roentgenologic diagnosis might help limit the resection and make it easier for the surgeon to locate a soft lipoma at the time of operation.

PHYSIOLOGY

Nutrition and Blood Cholesterol Level. E. Picchio and E. Rottini. Minerva med. 49:783-786 (March 3) 1958 (In Italian) [Turin, Italy].

Correlation between nutrition and the serum cholesterol level was studied in 97 inmates of a women's jail. This group was selected because of the standard diet which the inmates had received for a prolonged period of time. The daily diet consisted of 400 Gm. of carbohydrates (which constituted 70% of total calories received), 50.1 Gm. of fat (19.5% of total calories), and 60.8 Gm. of protein (10.5% of total calories); this daily diet amounted to 2,355 calories. Since the inmates worked, the diet was inadequate, being slightly lacking in protein and lipids but rich in carbohydrates; steps have recently been taken to correct the situation. The mean serum cholesterol level in the patients was 223.7 mg. per 100 cc., which is higher than the level which the authors consider normal (208 mg. per 100 cc.).

Fifty-two inmates who had spent more than 5 years in jail had a lower serum cholesterol level (220 mg. per 100 cc.) than 45 inmates who had spent less than 5 years in jail (228 mg. per 100 cc.). This observation is noteworthy when one considers that almost all the inmates who had spent more than 5 years in jail were more than 40 years old and were thus in the age bracket in which an elevated serum cholesterol level is frequent. The authors believe that the serum cholesterol level is closely related to the endogenous rather than the exogenous nutrient metabolism. Poorly balanced diet contributes to the manifestation and to the exacerbation of a preexisting metabolic disorder; it probably does not initiate one.

Effect of Certain Dietary Oils on Bile-Acid Secretion and Serum-Cholesterol. B. Lewis. Lancet 1:1090-1092 (May 24) 1958 [London].

The serum cholesterol level is raised by most fats of animal origin, but it is lowered by many highly unsaturated oils from vegetable and marine animal sources. The object of the present study was to identify the mechanism or mechanisms by which these unsaturated oils lower the serum cholesterol level. Cholesterol is excreted mainly as bile acid both in the rat (taurocholic acid) and in man (glycocholic acid). In the experiments described, 3 patients with complete bile fistulas were studied, the bile acid output being followed during manipulation of the serum cholesterol level by administration of various fats and oils. Sunflower-seed oil (by mouth) and cottonseed oil (intravenously), which are both highly unsaturated, produced a remarkable increase in the rate of cholic acid secretion, which preceded the fall in serum cholesterol level. On the other hand, a saturated fat such as hydro-

genated coconut oil, did not affect the bile acid output but raised the serum cholesterol level. These findings support the hypothesis that the mechanism by which the serum cholesterol value is reduced by certain vegetable oils involves accelerated catabolism of cholesterol to cholic acid.

PUBLIC HEALTH

A Twenty-Year Appraisal of BCG Vaccination in the Control of Tuberculosis. J. D. Aronson, C. F. Aronson and H. C. Taylor. A. M. A. Arch. Int. Med. **101**:881-893 (May) 1958 [Chicago].

The value of BCG vaccination in the control of tuberculosis among 8 American Indian tribes living in 5 widely separated areas has been investigated over a period of 20 years. Tuberculin-negative school and preschool children, grouped by age and sex, were divided by alternation into 2 groups. A group of 1,551 received an intracutaneous injection of BCG vaccine, while a group of 1,457 received an intracutaneous injection of isotonic sodium chloride solution and served as controls. Twenty years after the study was initiated, in 1956, the areas were revisited, and 1,547, or 99.7%, of the vaccinated and 1,448, or 99.4%, of the controls were accounted for. Of the BCG-vaccinated, 104, or 6.7%, had died during the 20 years: 0.84% of tuberculosis, 3.0% of nontuberculous disease, and 2.9% of violence. Among the controls, 150, or 10.4%, had died of all causes: 4.7%, of tuberculosis, 2.9%, of nontuberculous disease, and 2.9%, of violence. The ratio of deaths from all causes of vaccinated to controls was 1:1.5; the ratio of deaths from tuberculosis was 1:5.2; and the ratio of deaths from nontuberculous disease and violence was 1:1.

Among the vaccinated tuberculosis was responsible for 12.5% of all deaths, while among the controls tuberculosis was responsible for 45.3% of all deaths. In the control group the percentage of deaths from tuberculosis among females was twice as great as that among males, but in the vaccinated group both sexes had the same percentage of deaths from tuberculosis. Under the conditions of this study, a 15-year follow-up would have been sufficient to establish the value of BCG vaccine, since during the last quinquennium only 1 death from tuberculosis occurred among the vaccinated and 3 among the controls.

An Outbreak of Infectious Hepatitis on a College Campus. W. Clark, D. Sachs and H. Williams. Am. J. Trop. Med. **7**:268-279 (May) 1958 [Baltimore].

In the fall of 1952, an epidemic of infectious hepatitis was observed among the faculty and student body of a privately operated coeducational college in South Carolina. At least 222 individuals were affected, the over-all attack rate being 8%. The outbreak was abrupt in onset, short in duration, and all its characteristics suggested a common source of infection. Cases were distributed throughout the campus population with great uniformity, with 2 exceptions: disproportionately low attack rates (0.4%) were observed in students who lived off the campus, and disproportionately high attack rates (17 to 50%) were observed in student workers in the common dining hall. Although every evidence pointed to a common source and mode of infection, these could not be determined with certainty.

While nothing could be found pointing directly to water or milk as the source of infection, it is perhaps unwise in the case of infectious hepatitis to use the same criteria for the purity of milk and water supplies as would be applicable for less hardy infectious agents. It is possible that the hepatitis virus could remain a source of infection after treatment adequate to remove other kinds of agents. A recent epidemic in New Delhi, India, presumably caused by virus present in water with acceptable coliform counts, is evidence of this. Possibly the explanation for the outbreak lies in an understanding of its relationship to the epidemic in a smaller school. Use of contaminated fresh produce by the 2 institutions remains an intriguing possibility.

Isolation of ECHO Virus Type 9 from an Outbreak of Aseptic Meningitis with Rubelliform Rash, Toronto, 1956. I. V. Sultanian and A. J. Rhodes. Canad. J. Pub. Health **49**:181-185 (May) 1958 [Toronto].

Thirteen antigenically similar strains of a virus were isolated in tissue cultures from 10 patients during an outbreak of aseptic meningitis, associated with the appearance of a rubelliform rash, in Toronto and vicinity in the summer of 1956. Nine of these viral strains were recovered from the feces and 4 from the cerebrospinal fluids of these patients. The agents were readily isolated in human amnion and in the epithelial cells of kidneys of monkeys. Neutralization tests showed that they were antigenically related to the enteric cytopathogenic human orphan (ECHO) virus, type 9. Unlike the prototype ECHO 9, the isolates were pathogenic to suckling mice, and the lesions produced were similar in many respects to those caused by some of the Coxsackie viruses. Serologic studies showed that the isolates were poor antigens. The fact that some of the viruses isolated from patients during the outbreak of aseptic meningitis, with rubelliform rash, were recovered from the spinal fluid, that all strains were antigenically similar, and that neutralizing antibodies developed in the convalescent serums of the patients is further evidence that ECHO 9 strains are human pathogens and give rise to a specific disease.

BOOK REVIEWS

Fundamentals in Cardiology. By John B. Wild, M.D., Assistant Professor, Department of Internal Medicine, Member of Cardiovascular Laboratory, University Hospital, Iowa City, Iowa. Cloth. $4.50. Pp. 83, with 16 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1958.

This book by a clinical physiologist describes in graphic form the hemodynamic changes recorded in the various chambers of normal hearts as compared with hearts that are abnormal due to valvular disease or shunts. The data presented resulted from cardiac catheterization studies of valvular and congenital heart disease. The physical findings of each type of heart lesion discussed are pointed out and emphasized in reference to the hemodynamic etiological factors involved. The author wrote the monograph particularly for the student, intern, and resident because of the need for this type of textbook in teaching curriculums. He was aware that the data was scattered throughout the medical literature of the past 10 or 15 years, and by compiling it into a small, compact volume he has performed a welcome service.

Tuberculosis in Animals and Man: A Study in Comparative Pathology. By John Francis, D.Sc., M.R.C.V.S., Professor of Veterinary Preventive Medicine and Dean, Faculty of Veterinary Science, University of Queensland, Brisbane, Australia. Cloth. $18. Pp. 357, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; Cassell & Co., Ltd., 35 Red Lion Sq., London, W. C. 1, England; 210 Queen St., Melbourne; 26-30 Clarence St., Sydney, Australia, 1958.

The author's book "Bovine Tuberculosis," published in 1947, provided a basis for one section of this book. The subject of avian tuberculosis, including infection of wild birds and of mammals with avian tubercle bacilli, was aided by the study by Feldman in 1938, and many other original and authentic sources were used. The incidence of tuberculosis in cattle is estimated, and methods of diagnosis, control, and eventual eradication are outlined. The relationship of the three types of tubercle bacilli and of the human and bovine tuberculosis epidemics is discussed. Infection of man with bovine-type bacilli and the so-called skin tuberculosis of cattle, important because it sensitizes to tuberculin, are discussed, with reference to similar conditions in buffaloes and in man. The purpose of the book is to provide a modern account of tuberculosis in all the species for which there is reliable information. Tuberculosis offers an ideal field for the application of the comparative method, and it is hoped the account given will contribute to a better understanding of tuberculosis as a whole and provide a general picture of the disease at a time when a determined effort is being made, in both the medical and veterinary fields, to eradicate this infection. The three sections cover bovine tuberculosis, tuberculosis in animals other than bovine, and a comparison of the pathology and epidemiology of tuberculosis in animals and man. This is a valuable volume to set beside Koch's original paper (1884), Straus's classic "La Tuberculose et son bacille" (1895), Calmette's "L'infection bacillaire et la tuberculose," Cobbetts's "The Causes of Tuberculosis" (1917), and the massive reports of the British Royal Commission on Tuberculosis. As a reference book, it should find an honored place for a long time. The illustrations are well chosen and of high grade. The pleasing arrangement adds to the book's attractiveness.

Care of the Premature Infant. By Evelyn C. Lundeen, R.N., Supervisor, Premature Infant Station, Sarah Morris Hospital of Michael Reese Hospital, Chicago, and Ralph H. Kunstadter, M.D., F.A.C.P., F.A.A.P., Attending Pediatrician and Vice-Chairman, Department of Pediatrics, Michael Reese Hospital. [Portions of book appeared formerly under title The Premature Infant, by Julius H. Hess, M.D., and Evelyn C. Lundeen, R.N., 1941, 1949, Lippincott Company.] Cloth. $8. Pp. 367, with 87 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 4865 Western Ave., Montreal 6, Canada; Pitman Medical Publishing Company, Ltd., 45 New Oxford St., London, W. C. 1, England, 1958.

This is an excellent textbook, especially for nurses. It is written by two well-qualified persons and covers the entire problem of prematurity in a simple, clear, and concise manner. The sections on organization of the station for premature infants, nursing routine and techniques, and feeding and feeding techniques are especially commended.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUESTIONS AND ANSWERS

ANTIBIOTICS AND PROLONGED STEROID THERAPY

To the Editor:—*What is the general consensus of opinion on the need for antibiotics in conjunction with cortisone therapy in terms of the patient on long-term cortisone therapy, as in arthritis or some of the collagen diseases? The need for close scrutiny to recognize any infection that may develop is realized, but would it be considered necessary to give an antibiotic in conjunction with cortisone to prevent the development of infection?*

Ernest B. Miller, M.D., Manistee, Mich.

Answer.—Antibiotic therapy in prophylaxis should not be given with long-term corticosteroid therapy. Antibiotic therapy should be used in the presence of an active infection after the organism has been isolated and sensitivity studies done.

GRAFTS FOR THIRD DEGREE BURNS

To the Editor:—*In applying split-thickness grafts to a third degree burn, is it better to remove the granulations down to a firm yellow base or to apply the grafts on top of the granulations which are clean (bacteriologically) and healthy? If the granulations are removed, what method should be used so as not to lose too much blood and to prevent oozing of blood beneath the applied split-thickness grafts?* *M.D., New York.*

Answer.—In third degree burns it is best to slice granulations off in sheets, leaving a smooth yellowish base. The granulations must not be scraped. Grafting is more successful on a clean base. Hemostasis should be completely controlled before any graft is applied. Control of capillary oozing is usually effected by means of warm, wet sponges which are applied with pressure. If bleeding persists, the offending vessel may be clamped with a hemostat and crushed. If this is not completely effective, a no. 0000 or 00000 catgut may be used. Sometimes the application of topical thrombin with pressure is also effective. If possible, the use of catgut should be avoided, because during the absorption of this material a localized necrosis takes place at the site of the catgut, although this is usually inconsequential. A massive pressure dressing should be applied after the operation is complete.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

BAGASSOSIS

To the Editor:—*Please give information on bagassosis due to sugar cane sensitivity.*

Howard H. Ingling, M.D., Springfield, Ohio.

Answer.—Bagassosis is a pneumoconiosis due to the inhalation of bagasse dust, bagasse being the name for the dried pulverized stalks of sugar cane. It is of importance as an industrial hazard in two principal areas: where cane sugar is manufactured and in plants where bagasse is processed into insulating board. The best control measure is prevention, either by adequate forced ventilation or by having exposed workers wear protective filtering masks. Clinically, bagassosis tends to be subacute, with fever and cough the outstanding symptoms. Large, conglomerate radiopaque areas may be seen on chest roentgenograms. After the patient is no longer exposed to the cane dust, symptoms usually clear in one to three months. There is no specific treatment, but patients may be relieved of troublesome symptoms due to hypersensitivity to protein components of the dust by antihistamines or steroids. They should be watched closely for secondary bacterial pulmonary infection in order that appropriate treatment may be begun promptly.

HANDLING TUBERCULOUS SPECIMENS

To the Editor:—*What is the best procedure for a pathologist to follow in handling actively tuberculous autopsy and surgical specimens, with respect to minimizing the hazard of infection to himself and to laboratory technicians and obtaining technically satisfactory slides within two or three weeks after receipt of the specimen? The custom in this laboratory is to fix such specimens in 10% formalin for 10 to 14 days before cutting them. Please evaluate the reliability of this technique.* *M.D., Massachusetts.*

Answer.—To reduce the hazard to the surgeon, pathologist, or laboratory technician who wishes to obtain specimens of tissue from actively tuberculous lesions, the first consideration is the realization that tubercle bacilli are most dangerous when present as minute invisible droplet nuclei in the air inspired by the exposed person. The greatest source of such droplet nuclei is from opening tension cavities. In this consultant's laboratory, an ultraviolet lamp emits monochromatic rays of 2,537 Å directly over the autopsy table where the sectioning is done. If possible, it would be desirable to insufflate, under atmospheric pressure, 10%

neutral formalin into the bronchus communicating with the cavity and tie off the channel. This not only insures the death of the contained bacilli within a few days but preserves the specimen in its natural anatomic relationship and greatly aids in the assessment of the character and extent of the lesion. At this time the cavity can be sectioned in any desired manner without undue danger of contagion. If it is mandatory to open a fluctuating lesion prior to formalin fixation, one may cover the lesion, umbrella fashion, with filter paper soaked in 70% alcohol or other disinfectant and cut beneath the filter paper so that the escaping spray will be intercepted by the antiseptic-soaked filter paper. When doing this, one should wear gloves and a face mask. Fixation of sections of tissue 2 or 3 mm. in thickness for one week in 10 volumes of 10% neutral formalin is sufficient both for sterilization and for histological preparation. Neutral formalin is the most widely used fixative and is suitable for the greatest variety of subsequent histological procedures.

TRAUMA AND SARCOMA

To the Editor:—*What is the relationship of trauma to the cause or aggravation of an osteosarcoma or Ewing's sarcoma?*

A. F. Barnett, M.D., West Frankfort, Ill.

Answer.—There is no good evidence that trauma of any kind has ever been known to produce an osteosarcoma or Ewing's tumor. A severe bruising injury or a fracture which involved an osteosarcoma has been thought to cause an accelerated rate of growth of the malignant lesion. It would seem reasonable to assume that the same would be true of a Ewing's tumor or any other malignant bone tumor. Aggravation of a preexisting malignant tumor of a bone has been determined by court decisions, and in several instances by the Industrial Commissioners of the State of Illinois, where a patient had suffered a fracture through the tumor area.

FLATTENING OF ONE SIDE OF THE HEAD

To the Editor:—*A baby, 11 months old, always sleeps with his head turned to the right, lying flat with the remainder of the body. The head shows perceptible flattening on the affected side. The anterior fontanelle is closed. What measures should be taken to correct this? If flattening persists, is there any risk of cerebral damage?*

M.D., Connecticut.

Answer.—It is difficult to change the sleeping position of an infant 11 months old, as by that time he can roll over at will. As a preventive measure for such a condition, a very young infant should be made to lie part of the time on each side, back, and abdomen. Infants prefer, as a rule, to face a source of light, and the position of the bed can be changed from time to time so that he is not always facing the light from the same position. Inasmuch as an 11-month-old infant sits or stands much of the time while awake, unless a torticollis exists while sitting no permanent damage can result. The infant should be placed on his abdomen before falling asleep or, if he will not fall asleep in that position, turned on his abdomen as soon as sound asleep. The flattening of his head on the affected side will not cause any cerebral damage and will largely disappear over the next few years. However, if a torticollis (holding the head to one side) does exist when he sits or stands, orthopedic care is indicated (possibly a shortened sternocleidomastoid muscle may be the cause).

SALMONELLA CARRIER

To the Editor:—*A 39-year-old woman was treated for enteritis caused by a salmonella infection in January, 1958. She was given 250 mg. of chloramphenicol four times a day for one week. Because of a persistent positive stool report of Salmonella paratyphi B var. java from the state public health laboratory, she was again given chloramphenicol, this time for two weeks. Her stool cultures have remained positive. Findings on complete x-ray and sigmoidoscopic examinations were essentially negative. She had an appendectomy in 1946. She is asymptomatic. What is suggested for treatment?*

Harry W. Depew, M.D., San Diego, Calif.

Answer.—The failure of the patient to respond to treatment with chloramphenicol is evidence that the organism is either resistant to the antibiotic in the dosage given or may be in her gallbladder or bile ducts and hence inaccessible to the drug. Since there is no assurance that treatment with other antibiotics would cure the carrier condition and since the patient is not a food handler, this consultant would recommend no further treatment. In many cases the carrier condition clears in a matter of months, and for that reason stool cultures should be taken at six-month intervals to see whether the carrier state persists.

BIOLOGICAL ACTIVITY OF BANK BLOOD

To the Editor:—*What is the proportion between biologically active oxyhemoglobin and the hemoglobin in bank blood with A.C.D. solution added as an anticoagulant, according to spectroscopic examination, as supplied by blood banks?*

Alfred R. Ross, M.D., Cape Vincent, N. Y.

Answer.—Bank blood (with A. C. D. solution, anticoagulant) 1 day old is indistinguishable from 21-day-old bank blood as judged by spectroscopic examination, both being within the range of nor-

mal. In vivo survival studies provide a measure of biological activity of the erythrocytes and their hemoglobin. Such studies show that virtually 100% of erythrocytes survive normally in the recipient if the bank blood is preserved with A. C. D. solution and is infused no later than 10 days after donor venesection. In contrast, bank blood administered 21 days after donor venesection shows normal survival of over 70% of the infused erythrocytes, the rest (together with their hemoglobin) being removed from the recipient's circulation within 24 hours of infusion.

BITTERNESS IN THE MOUTH

To the Editor:—*A man, aged 57, complains of a strong taste of bitterness in his mouth and throat all the time regardless of what he may eat or drink or the kind of work he may do. This sensation began after his tonsils were removed Feb. 7, 1958. Findings on all examinations have been essentially negative. The only thing found was a fairly large hiatus hernia. Is it possible that there could be a regurgitation of digestive fluids or bile which would cause the taste of bitterness in the mouth? What else might cause this disagreeable sensation?*

Frank R. Ruff, M.D., Fresno, Calif.

Answer.—The complaint of "bitterness in the mouth and throat" is not an uncommon one. There are probably a good many causes, but in most instances the complaint is of a functional nature, related to aerophagy, dietary habits, poor elimination, and dental care; at times there is an associated compulsive neurosis. The possibility of regurgitant esophagitis associated with an esophageal hiatus hernia could receive consideration. Esophagoscopy and roentgenologic examination should help to determine this. It is unlikely that repair of such a hernia will eliminate this symptom. Rarely is the actual cause of this unpleasant symptom found.

EMOTIONAL PROBLEMS FOLLOWING ORGANIC BRAIN DISEASE

To the Editor:—*A 42-year-old man had a cerebral hemorrhage a year ago, causing a hemiplegia. He is sufficiently recovered to resume a responsible job, but he has sought psychiatric help because he is prone to outbursts of rage toward his family and is fearful of being destructive. Are emotional problems following organic brain disease amenable to psychotherapeutic help?*

M.D., Indiana.

Answer.—A person suffering from the after-effects of organic brain disease can be helped by psychotherapy insofar as he is a reasonable individual. It may be concluded that he can be reasoned with, since he has been able "to resume a responsible job." Having suffered a cerebral hemorrhage which left him with a hemiplegia, there is obvious destruction of brain tissue, and, therefore, he may be said to have suffered a "lobotomy." Where lobotomies are done for therapeutic reasons, it is not uncommon to find the patients lacking control of emotional outbursts after such operations. In any case, where there is a lack of emotional control, there is potential danger of destructiveness. Psychotherapy would, therefore, have to be directed toward giving the patient an understanding of his margin of safety and leading him to the realization that he has to keep within that margin. Otherwise, he may get out of emotional control. A review of recent literature does not reveal any specific reference to the use of psychotherapy in organic brain disease, but the same principles that are used in the treatment of any mental illness certainly apply in this case. Consequently, any standard textbook on psychotherapy would give the essential techniques.

GYNECOMASTIA AND RESERPINE

To the Editor:—*A 75-year-old man with hypertensive vascular disease gives a history of having had a malignant tumor of the testis removed with supplemental x-ray therapy in about 1932. There is no sign of recurrence. Twice, when his dosage of reserpine was increased to a maximum of 3 mg. per day, he developed a definite enlargement and tenderness of the right breast with edema of the areola and darkening of the nipple. There has been a slight reaction on the left nipple with no breast enlargement. On withdrawal of this therapy, the gynecomastia subsided completely. Please give an explanation of this occurrence.*

David Gregory, M.D., Glasgow, Mont.

Answer.—There is no reason to suppose that the mammary response to high doses of reserpine was in any way related to the occurrence of a testicular tumor a quarter-century before. Stimulation of the mammary gland, however, may occur rarely in either sex as a side-effect of high doses of the tranquilizing rauwolfia or phenothiazine products. Continued administration probably would have led to milk secretion. Animal experiments indicate that this phenomenon is due to the release of pituitary lactogenic hormone (prolactin) associated with inhibition of gonadotropic hormones. A sensitivity of this type is no contraindication to the use in such a case of what would probably be the safest antihypertensive therapy, namely, a combination of smaller doses of reserpine with other drugs, such as hydralazine hydrochloride, ganglionic blocking agents, or chlorothiazide. Properly individualized combination therapy may permit the use of smaller doses of all drugs concerned, in which their separate side-effects would be minimized or absent.

PERSISTENT "BLINKING" IN A CHILD

To the Editor:—*An 8-year-old girl, in good health, began to "blink" her eyes about one year ago. An ophthalmologist found nothing wrong with her eyes, but the patient says they feel irritated. She is allergic to some foods. Could this be due to a nutritional deficiency? Her diet seems to be well balanced. What are the causes of such a condition? Please give suggestions for therapy.*

Jerome Kogan, M.D., Stamford, N. Y.

Answer.—"Blinking" in a child may be caused by several things: 1. Recurrent irritants. This is most unlikely except in such instances as constant exposure to chlorine or other chemicals in a swimming pool. 2. Low-grade, persisting infection of the cornea or conjunctiva. This, in the experience of this consultant, is not common but is possible and might well be established by the use of appropriate laboratory procedures. 3. Allergic conjunctivitis. This condition is not common either, but it is a decided possibility, and clinical appearance and appropriate laboratory procedures would help to establish this diagnosis also. 4. Disease of the central nervous system. This, too, is an uncommon cause. 5. "Nervous habit." Such is the most common cause of blinking in children and is frequently seen in children who pull their hair, fiddle with their nose and ears, chew their fingernails, and suck their thumbs. If organic cause has reasonably been ruled out, an effort should be made to ignore the blinking completely and, if necessary, to seek psychiatric or psychological advice. It is doubtful that nutritional deficiency would play any part in this condition. It is not common to find that local irritation, in the form of either low-grade infection or allergy, will start the blinking, and this may continue as a nervous habit. The use of soothing washes containing soda and soothing drops containing a slight amount of anesthetic and antiseptic and, probably, the oral administration of one of the antihistamines would seem to be helpful in cases which continue to be nonspecific in nature. It must be recalled that, unless the blinking is severe, any treatment may tend to prolong a so-called nervous habit.

GENETIC BACKGROUND FOR LEUKEMIA AND DIABETES

To the Editor:—*A baby is up for adoption. The grandfather of this baby is a diabetic; a first cousin died of leukemia. The would-be adoptive parents want to know what effect this history has on the future of the baby.*

W. A. Rauch, M.D., Manitowoc, Wis.

Answer.—There is no evidence as yet to indicate a strong genetic background for leukemia, and, as it is only the first cousin of the baby who was affected, this factor can be ignored in planning for adoptive placement. The likelihood of the baby becoming diabetic is considerably higher because of the high frequency of diabetes in the whole population. The frequency of diabetes in the population eventually turns out to be as high as 3 or 4%, but it is, of course, a great deal lower than this in children. The evidence seems to be that diabetes is a recessive trait which is carried by perhaps as much as one-fifth of the population. Consequently, this baby and all other babies have a reasonable chance of developing diabetes at some time. However, with proper therapy it does not cut down their life expectancy and, indeed, is not a very serious problem in most cases. This consultant's recommendation would be for the adoptive parents to go ahead and adopt the baby and to pay no further attention to the problems of leukemia and diabetes beyond what any well-educated couple would do in having occasional physical check-ups for their children, which, of course, include a urine sample.

THINNING OF HAIR IN WOMEN

To the Editor:—*A 37-year-old woman was seen because of weight loss and alopecia, present for five or six months. She also has a mild anxiety neurosis. Her history is noncontributory, and findings on physical examination were completely within normal limits except for generalized thinning of scalp hair, several areas being almost completely bald with no new hair growth noted. Please give suggestions or information on treatment for this condition.*

M.D., Kentucky.

Answer.—Thinning of the hair in a woman approaching 40 years of age and loss of weight are nonspecific findings and are not indicative of any diagnosis. Many conditions may cause thinning of the scalp hair in an adult. However, it is assumed that the patient has no seborrheic dermatitis, trichotillomania, or alopecia areata, any recent illness or pregnancy, or exposure to an overdose of x-rays. Dermatologists are encountering more and more of this type of alopecia. It is tempting to theorize that the loss of hair is on a hormonal basis, such as a masculinizing tumor or premature menopause with a disturbance of the androgen-estrogen balance to the male side. However, many of these cases are due to less exotic causes, such as the use of cold waves or hair straighteners. If this is the situation, the hair will break off rather than fall out. The patient often will interpret this as a baldness due to shedding of the hair rather than to its rupture. Discontinuance of such chemicals results in a "cure" in one to three months. Excessive brushing is to be deplored. If these suggestions are not applicable to this patient, she should be subjected to an expert endocrinological analysis and a search should be made for a masculinizing tumor, such as an arrhenoblastoma of the ovary. Treatment with estrogenic substances may be indicated by such a survey.

DISSOLVING CORNEAL OPACITIES

To the Editor:—*Has a new drug been made available for the treatment of amblyopia in a diabetic patient? A 79-year-old woman has had diabetes for 35 years. Eye tests revealed no cataract or other condition and the presence of acid and sweet tears. The blood sugar level was 150 mg. per 100 cc.; the urine was free of sugar. Her maintenance therapy has included insulin, 10 units of the 80 units per cubic centimeter concentration, and lente insulin, 30 units of the 80 units per cubic centimeter concentration. A scum has formed over the eyes, producing blurred vision. Attention has been drawn to a medicine, given in drop form, that will dissolve this coating on the eyes. Please give information on such a drug.*

Roy Millsap, M.D., Los Angeles.

Answer.—Amblyopia as a complication of diabetes can be due to numerous conditions. In a 79-year-old person who has had diabetes for 35 years, it would be unusual not to find diabetic retinopathy. The "scum" over the eyes refers, apparently, to corneal opacities. The only corneal opacity that can be dissolved is that due to calcium infiltration, as in band-shaped retinopathy, which gives a pathognomonic picture on biomicroscopic examination with the slit-lamp. For treatment, a chelating agent is used, edathamil calcium-disodium (calcium disodium ethylenediaminetetraacetate, EDTAA), 0.37%, with a 0.1% solution of sodium bicarbonate, which is sterilized by boiling. After the corneal epithelium is peeled off, the solution is dropped into the eye continuously for 15 minutes. The prepared solution is obtainable in quantities of 100 cc.

MERCURY AND ACRODYNIA

To the Editor:—*Has a relationship between acrodynia and mercury absorption been established? For some reason diaper rashes in a patient are much more frequent and persistent lately. These rashes formerly responded to treatment of the diapers with bichloride of mercury. Another helpful ointment was ammoniated mercury. Is it wise to give up the use of these mercurials, at least in children up to 3 years of age?*

Blackwell Sawyer, M.D., Toms River, N. J.

Answer.—At present the exact cause of all cases of acrodynia is not established, but mercury, and at times other heavy metals, as the cause is the best substantiated and documented. If these heavy metals are the etiological agent, then there must be an unusual tissue sensitivity or idiosyncrasy to the chemical compounds. The finding of mercury in the urine, the frequency of a history of ingestion of some mercury compound, and the response to dimercaprol weigh heavily in favor of mercury as being the etiological agent. Warkany and Hubbard (*A. M. A. Am. J. Dis. Child.* 81:335, 1951) found mercury in the urine of 25 of 28 children with the disease, and in the 3 with negative findings there was a history of taking mild mercurous chloride. Franconi and others (*Helvet. paediat. acta* 3:264, 1948) reported positive urinary findings in 19 of 20 cases and Holzel and James (*Lancet* 1:441, 1952) in 61 of 94 cases. Bichloride of mercury and boric acid are used much less frequently than formerly to prepare diapers because of the hypersensitivity and toxicity reported from their use. There are several commercial compounds on the market that are effective and less toxic than bichloride of mercury.

EXCESSIVE SALIVATION IN PARKINSONISM

To the Editor:—*Is there anything which can be used to check the excessive salivation which occurs in patients with Parkinsonism?*

M.D., Iowa.

Answer.—There is nothing effective for the excessive salivation which occurs with this condition. The various drugs used in the treatment of other symptoms have a drying effect on the mucous membranes in varying degree, but they are ineffective in stopping excessive salivation.

SERUM CHOLINESTERASE AND MYASTHENIA GRAVIS

To the Editor:—*In* The Journal *for June 21, 1958, page 1057, a question was concerned with cholinesterase levels in a patient with myasthenia gravis and a history of frequent exposure to various and sundry insecticides. The consultant indicated that he had no evidence that chronic residuals from insecticides affect the level of serum cholinesterase. I would therefore like to direct attention to the report by Quinby and Lemmon (*J. A. M. A. 166:740-746 *[Feb. 15]* 1958). In some of the cases of poisoning due to parathion residues reported by these workers, laboratory determinations indicated decreased cholinesterase activities in plasma, as well as in erythrocytes. These findings imply that blood cholinesterase levels are affected by residuals from certain insecticides.*

George X. Trimble, M.D.
1401 Chestnut Ave.
Long Beach 13, Calif.

The above comment was referred to the consultant who answered the original question, and his reply follows.—Ed.

To the Editor:—*The article by Quinby and Lemmon applies to residual insecticides left on the crop, not to residual symptoms that accompany low cholinesterase levels in the serum. In their report the values returned to normal ranges in three to six weeks after exposure. As far as is known, this kind of chronic poisoning is not related to myasthenia gravis as was stated in the question.*